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The 7,62 mm Machine Gun (MAG) 1972

Part 1 — The Light Machine Gun Role

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AMENDMENTS

Amendment number	By whom amended	Date of insertion

CONTENTS

		Page
Amendments		(i)
Contents		(ii)
List of Illustrations		(iii)
Technical Details		(iv)
Introduction		2

CHAPTER 1—INSTRUCTIONAL LESSONS

Lessons

1	Introduction, Stripping and Assembling	3
2	Daily Cleaning	9
3	Loading, Unloading, Sightsetting and Making Safe	11
4	Holding, Aiming and Firing	15
5	Immediate Action and Gas Stoppage Drill	21
6	Mechanism	25
7	Other Stoppages	29
8	Handling	40
9	Section Handling, Light Role	48
10	Close Quarter Battle and Anti-aircraft Handling	55
11	FN Tripod 1	59
12	FN Tripod 2	63

Practice

1	Loading, Unloading and Firing	21
2	Immediate Action and Stoppages	34
3	Handling	46
4	Section Handling	55

Live Firing

1	Introductory Shoot, Preparation for Firing and Cleaning	36
2	Further Firing Practice	46
3	Further Firing Practice at Longer Ranges	54

CHAPTER 2—EXTRA INFORMATION FOR INSTRUCTORS

Section

1	Zeroing	65
2	Additional Stripping and Assembly	67
3	Coaching	68
4	The Principles of Small Arms AA Fire	70
5	Training Tests	73
6	Waterproofing	76
7	The Blank Firing Attachment	76
8	Destruction of Weapons	76
9	Extract from Technical Instruction Arm 1/71, Care and Maintenance of Small Arms and Automatic Weapons	77
10	The Feed Box	79

LIST OF ILLUSTRATIONS

Figure		*Page*
1	The 7,62 mm Machine Gun (MAG)	1
2	The main components	4
3	Breech block and piston assembly	6
4	Stripping the extractor	8
5	Extractor stripped	8
6	Gas regulator assembly	10
7	Trigger assembly	10
8	Contents of the wallet	12
9	Body	14
10	Filling a belt	16
11	Removing a round	16
12	Loading position	18
13	Loading	18
14	The gun made safe	20
15	Holding	22
16	Correct aim	22
17	Metal case, second barrel and rod	24
18	Action of the gases	26
19	Cocking action	28
20	Gun loaded	28
21	Forward action	30
22	Breech locking and firing a round	31
23	Unlocking the breech	33
24	Extraction of the round	33
25	Feed mechanism forward movement	35
26	Feed mechanism backward movement	35
27	Cocking	37
28	Trigger pressed	37
29	Feed mechanism assembly	39
30	Firing from low cover	41
31	Firing from low cover, bipod folded	41
32	Firing from a fold in the ground, bipod folded	43
33	Firing round cover	43
34	Firing from cover—log	45
35	Firing from cover—trench	45
36	Firing from cover, standing position	47
37	Firing from cover, crouched position	47
38	The CQB position	56
39	The AA position, one-man	58
40	The AA position, two-man team	60
41	Trigger group stripped	66

TECHNICAL DETAILS

Calibre	:	7,62 mm
Length of Gun	:	1,255 m (49½ inches)
Length of Barrel	:	545 mm (22½ inches)
Weight of Gun	:	10,886 kg (24 lb)
Weight of Barrel	:	2,750 kg (6 lb 1 oz)
Weight of Metal Case for Barrel	:	1,640 kg (3 lb 10 oz)
Weight of 50 Round Belt (filled)	:	1,360 kg (3 lb)
Weight of 250 Round Belt (filled)	:	6,804 kg (15 lb)
Weight of Belt Box (empty)	:	2,040 kg (4 lb 8 oz)
Weight of Feed Box (empty)	:	310 g (11 oz)
Weight of Tripod (FN)	:	10,5 kg (23 lb)
Weight of Tripod (British)	:	13,608 kg (30 lb)
Number of Grooves	:	4
Twist of Rifling	:	Right Hand
Pitch	:	1 in 305 mm (12 inches)
Sights Range	:	200 to 1 800 metres
System of Operation	:	Gas and Recoil Buffer
Cyclic Rate of Fire	:	600 to 1 000 RPM

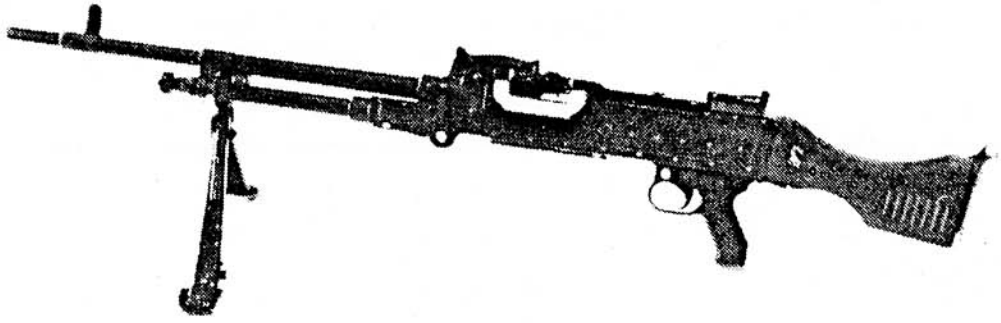
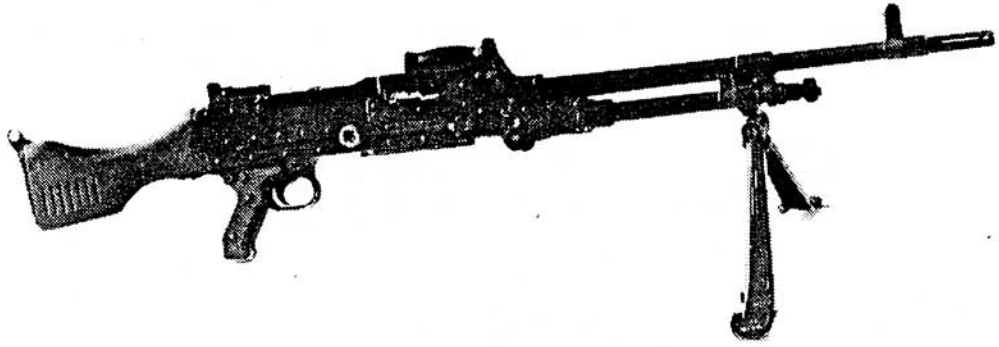


Fig 1—*The 7,62 mm Machine Gun (MAG).*



The 7,62 mm Machine Gun (MAG)

INTRODUCTION

AIM OF THE PAMPHLET

1. The aim of this pamphlet is to provide those who are charged with the teaching of the 7,62 mm MG (MAG) with sufficient material to train and exercise troops in the technical and minor tactical handling of the weapon.

LAYOUT

2. The pamphlet deals only with the light role and is in two parts:
   a. Chapter 1, Instructional Lessons.
   b. Chapter 2, Extra Information for Instructors.

3. The lessons in Chapter 1 are set out in instructional form, but instructors must also look for guidance to the pamphlet Successful Instruction, 1951, Code No 8670.

SAFETY PRECAUTIONS

4. Before a lesson begins make certain that all guns are unloaded, as described in para 5 of Lesson 1.

NOTES

5. The gun is simple to teach so keep your teaching simple.

6. Name parts as you handle them but do not waste time trying to get the squad to learn them. They will get to know them as they strip and handle the gun during later lessons.

7. Stripping should always be done with reasonable care. Do not strip against time.

8. Whenever the trigger is pressed, the working parts are to be eased forward under control. This rule does not apply when there is a belt on the gun, filled with either drill or live rounds.

9. Belts used for drill purposes should be partially filled with empty cases to prevent damage to the links and to make handling of belts more realistic.

10. Whenever the top cover is opened it is important that after closing it the action is cocked and the trigger pressed. This ensures that the feed roller on the breech block is positioned correctly in the channel of the feed arm and is not left under compression.

CHAPTER 1—INSTRUCTIONAL LESSONS

LESSON 1—INTRODUCTION, STRIPPING AND ASSEMBLING

INSTRUCTOR'S NOTES

1. *Aim.* To introduce the weapon and to teach safety precautions, stripping and assembling.

2. *Stores.* Guns with slings attached, belts, belt boxes, wallets and drill rounds.

3. *Notes.* This lesson requires one period.

CONDUCT OF THE LESSON

4. *Approach.* Explain the characteristics of the weapon:

   a. The 7,62 mm machine gun is designed for general purposes. It can be used either as a light machine gun fired from a bipod, or be fired from a tripod and used in the sustained fire role.

   b. It is a fully automatic, belt-fed, gas-operated weapon, capable of a sustained high volume of fire in bursts. It is simple and sturdy in construction, easy to learn and fire. Stoppages are rare and can be easily and quickly remedied.

   c. The weapon is air cooled. The barrel is chromed internally to reduce wear.

   d. The belts are articulated metal links, one holding 50 rounds and the other 250 rounds. The belt box holds a 250 round belt.

   e. The maximum range in the light role is 800 metres. In the sustained fire role the maximum range is 1 800 metres.

   f. Flash is reduced to a minimum by means of a flash hider and a specially designed gas regulator.

   g. The bipod legs can be folded and locked.

   h. All zeroing devices are on the foresight.

   j. The gun weighs 10,886 kg (24 lb).

SAFETY PRECAUTIONS

5. Explain that safety precautions must always be carried out before and after a MG has been used for any purpose. The command to do this during a lesson is "Prepare guns for inspection". With the men imitating explain and demonstrate:

   a. CHECK THAT THE SAFETY CATCH IS AT 'F'. Open the top cover by pushing in the cover catches, cock the gun by pulling the cocking handle fully to the rear; lift the feed tray. Inspect the chamber and body to ensure they are clear. Once this has been done the order "Gun clear" is given.

   b. Close the top cover, hold the cocking handle, operate the trigger and allow the working parts to go forward under control. Close the ejection opening cover, unless stripping is to follow at once.

   c. Inspect all belts, belt boxes, drill rounds and pouches to ensure that no live ammunition is present.

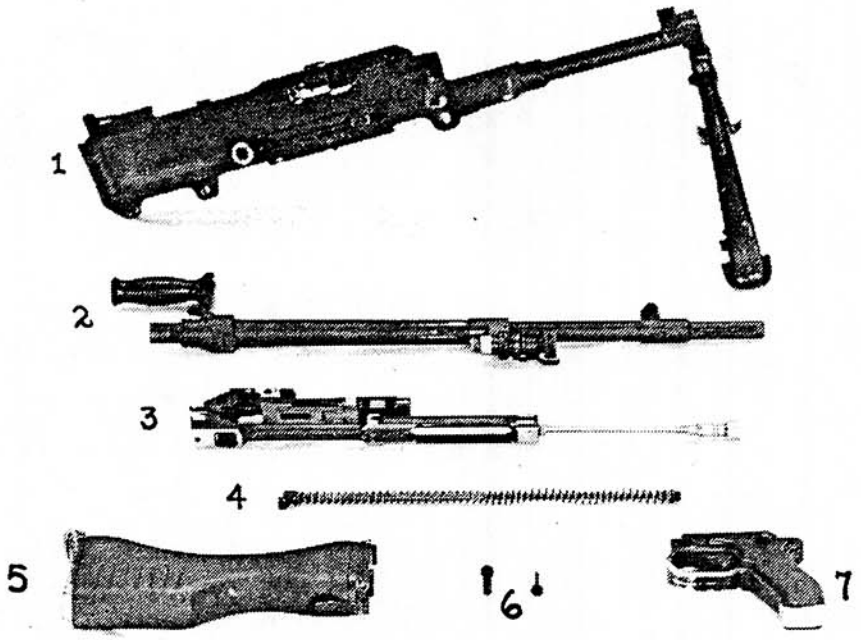


Fig 2—*The main components.*

1. Body and bipod.
2. Barrel and gas regulator.
3. Piston and breech block.
4. Piston spring and rod.
5. Butt.
6. Locking pins.
7. Trigger group.

STRIPPING THE MAIN COMPONENT PARTS

6. Explain that as parts are stripped they should be put in a clean place and care must be taken that they do not get damaged or become lost.

7. *Safety Precautions.* Carry out safety precautions and remove the sling.

8. *The Butt Group.* Hold the pistol grip with the left hand, grip the butt with the right hand and with the forefinger press up on the butt catch; lift the butt upwards until clear of the body.

9. *The Piston Group.* With the thumb of the right hand push the rear of the return spring rod slightly forward and upward. This disengages the stud on the rod from the keyholed-shaped slot in the body and allows the return spring and rod to be withdrawn by pulling to the rear. To remove the piston and breech block place the left hand behind the gun body and with the right hand pull the cocking handle sharply to the rear. The piston and breech block will now protrude from the body and can be drawn clear. Push the cocking handle forward.

10. *The Barrel Group.* To remove the barrel keep the gun upright. Press the insulated thumb piece and raise the carrying handle to a vertical position; push the barrel forward and lift off. The barrel is numbered to the body.

ASSEMBLING THE MAIN COMPONENT PARTS

11. *The Barrel Group.* Check that the numbers on the barrel and body agree. With the gas regulator downwards and carrying handle upwards, put the barrel on to the barrel support on top of the bipod; keeping the gun upright, draw the barrel to the rear and lower the carrying handle firmly but without undue force. To raise the carrying handle for the purpose of carrying the gun, lift up the release catch then rotate the handle to a vertical position.

12. *The Piston Group.* Check that the numbers on the piston and body agree. Hold the pistol grip with the left hand, guide the piston into the lower part of the body. At the same time ensure that the breech block is held fully forward and up. Position the breech block into its guides in the upper part of the body, press the trigger and push the piston group fully forward.

13. Insert the plain end of the return spring assembly and ensure that the stud on the rod is correctly engaged in the slot in the body of the gun.

14. *The Butt Group.* Lift the rear of the gun slightly, position the forward end of the butt into its guides in the body and press down until the catch is engaged. Test to ensure that the catch is fully engaged.

15. *Testing.* Always after assembly test the gun for correct assembly by cocking the gun and operating the trigger allowing the mechanism to go forward under control. Close the ejection opening cover.

Note: To cock the gun correctly the cocking handle must be pulled fully to the rear and the handle returned to its forward position.

16. Place on the sling.

17. Practise the squad. Leave the main components stripped.

DETAILED STRIPPING AND ASSEMBLING

18. *To Strip the Gas Regulator.* With the barrel removed from the gun unscrew the gas regulator anti-clockwise until free. During removal lift the indicator over the stop of the regulator sleeve. Before removing it put one hand under the regulator to prevent losing the split collars. If these do not fall off when the regulator is removed, take them off and put them

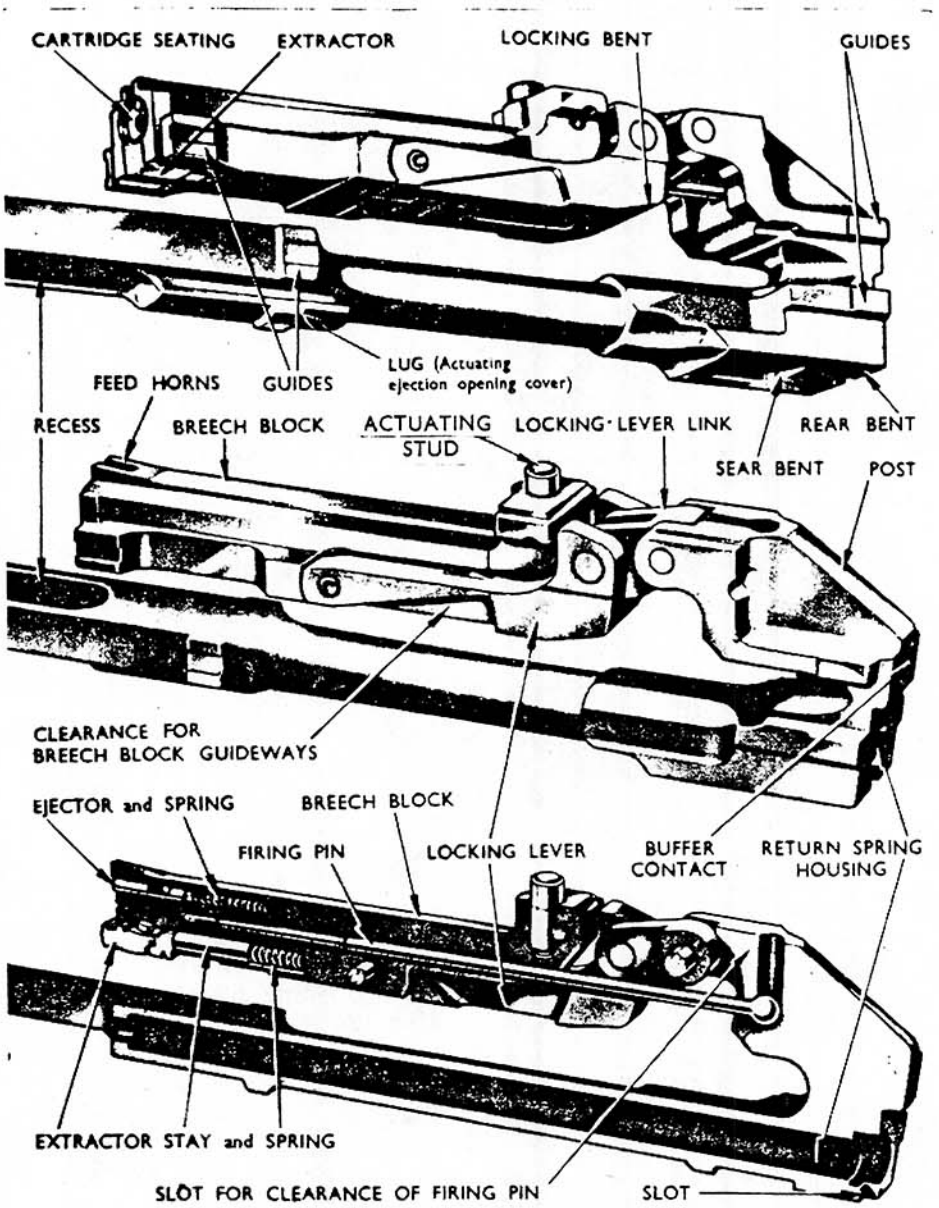


Fig 3—*Breech block and piston assembly.*

where they cannot be lost. Push the plug on the gas block to the rear and remove it. The gas regulator and plug are numbered to the body of the gun and are not interchangeable.

19. *To Assemble the Gas Regulator.* Check that the numbers of the plug and gas regulator are correct. Insert the plug into the gas block ensuring that the flat surface is in line with its seating. Replace the split collars, fit the regulator from the front and screw fully home. Turn the regulator anti-clockwise to position 1 which gives a rate of fire of approximately 600 rounds per minute. Under adverse conditions—mud, sand etc the maximum position should be used by rotating clockwise to the limit.

20. *To Strip the Breech Block.* Push the breech block to its forward position on the piston. Using the nose of a drill round push out the link pin and slide the breech block forward clear of the firing pin.

21. *To Strip the Extractor and Spring.* Use the combination tool and scraper. Hold the breech block with the extractor uppermost; lift the locking lever until it is upright. Insert the clip on the end which has the screw driver into the recess in the extractor stay; position the other end into the slot in the locking lever. Hold the tool down firmly with the thumb of the left hand and rotate the locking lever downwards, thereby compressing the extractor spring. Lift out the extractor claw and slowly ease the locking lever upwards until there is no tension on the extractor spring; remove the tool and pull out the extractor stay and spring. Great care must be taken that the thumb does not slip from the tool or the extractor stay and spring may be lost. The extractor is to be removed only for cleaning after firing.

22. *To Assemble the Extractor.* Replace the extractor stay and spring. Insert the clip on the end which has the screw driver into the recess of the stay, lift up the locking lever and hook the other end of the tool as for stripping. Push the locking lever down to compress the extractor spring. Insert the extractor into its seating and slowly raise the locking lever. Remove the tool and place it back into the wallet.

23. *To Assemble the Breech Block.* Insert the head of the firing pin into its recess and slide the breech block onto the firing pin, lift the lever link and insert the link pin.

24. Practise the squad. Leave the breech block assembled.

25. *To Remove the Trigger Group.* With the working parts forward and using a drill round remove the retaining pin from the rear of the pistol grip by pushing out the centre pin from one side and the retaining pin from the other. Remove the trigger group by pivoting the group downwards. The trigger group is not to be removed from the gun except for cleaning after firing. (See Chapter 2, Section 2.).

26. *To Replace the Trigger Group.* Check that the safety catch is at 'F'. Insert the recess on the front of the trigger group into its seating, holding it forward, lift the rear of the grip upwards. Ensure that the holes for the retaining pin are in line and replace the retaining pin and the centre pin.

27. Practise the squad.

CONCLUSION

28. Questions from and to the squad.

29. Sum up. Remind the squad that care must be taken when stripping and assembling, and NEVER to strip any part unless the gun is unloaded.

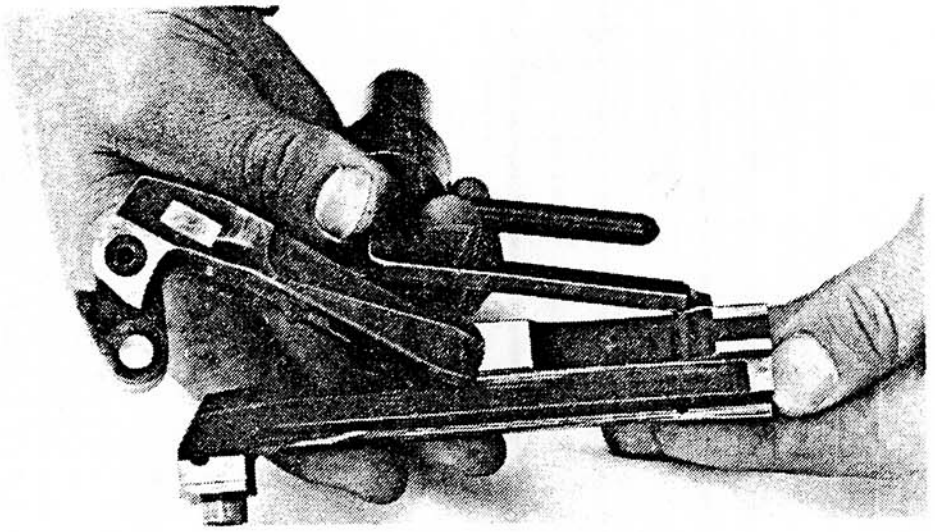
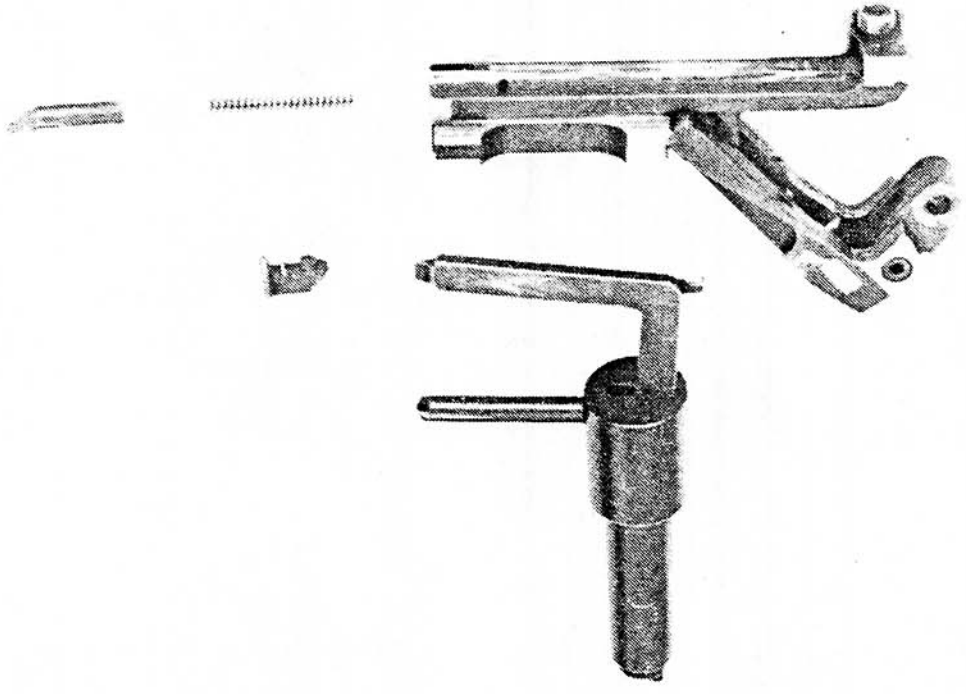


Fig 4—*Stripping the extractor.*

Fig 5—*Extractor stripped.*



LESSON 2—DAILY CLEANING

INSTRUCTOR'S NOTES

1. *Aim*. To teach how the gun is cleaned daily under both normal and adverse conditions.
2. *Stores*. Guns, wallets, oil and cleaning materials.
3. *Notes*.
   a. Whenever possible, members of the squad must be made to copy the actions of the instructor and be given practice in cleaning the various components.
   b. This lesson requires one period.

CONDUCT OF THE LESSON

4. *Preliminaries*.
   a. Safety precautions.
   b. Revise stripping and leave the gun stripped except for the extractor and trigger group.
5. *Approach*. Stress the importance of correct cleaning.

DAILY CLEANING

6. *Cleaning Materials and Spares*. Explain and demonstrate that each gun has a wallet containing the following items:

Combination tool and scraper
Scraper for regulator sleeve
Combination scraper for regulator (with protective container)
Clearing plug
Spanner special
C Spanner
Blank firing attachment
Zeroing tool
Reamers for gas ports
*Rod cleaning 4-piece with eyelet and bristle brush
Mop gas cylinder
Oil can
Wire brush gas cylinder
Rod gas cylinder
Flannelette

*The metal case for the second barrel contains a rod, 1-piece. (See Fig 17)

7. *Note:* The following spare parts should be carried in the wallet on operations:

a. MG	—	Two split collars Extractor Extractor stay Extractor stay spring Link pin
b. FN Rifle	—	Firing pin Extractor Extractor stay Extractor stay spring Tool Removing Extractor

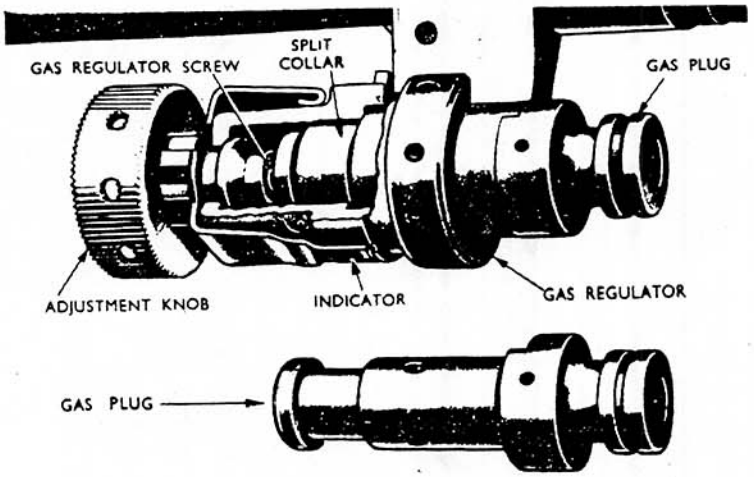


Fig 6—*Gas regulator assembly.*

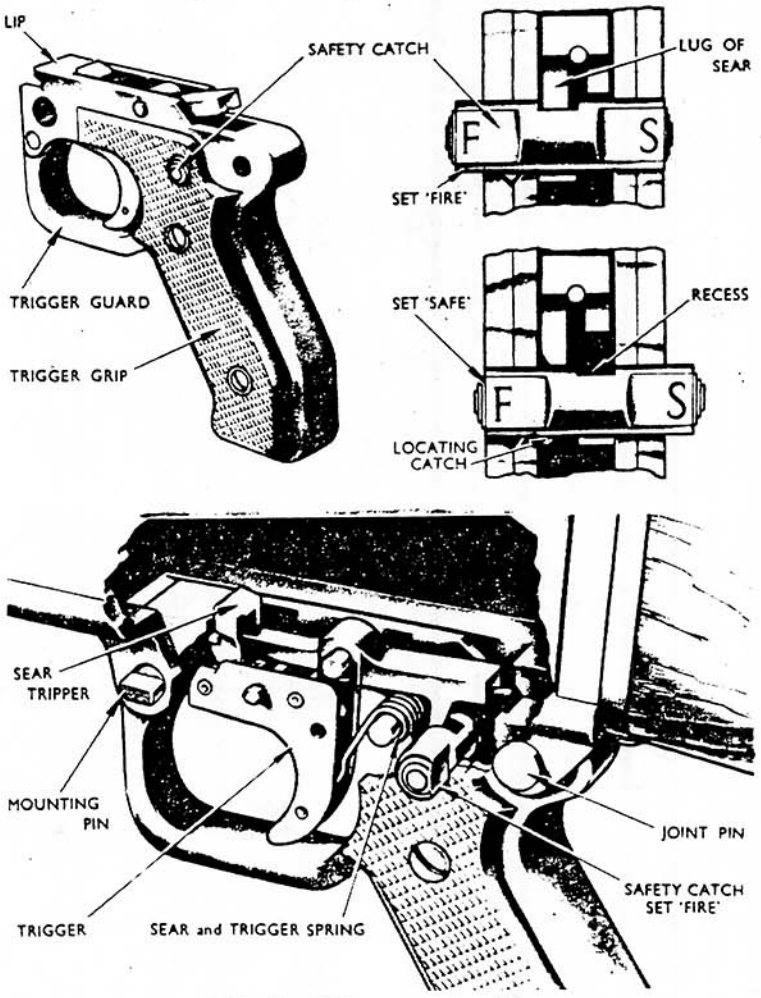


Fig 7—*Trigger assembly.*

8. Question the Squad.

9. *Daily Cleaning.* Explain and demonstrate with the squad imitating:

   a. Assemble the cleaning rod and using a piece of flannelette 4 x 2 inches, clean out the bore. Inspect to make sure it is clean. Always insert the rod from the chamber end and make certain that the rod does not rub against the chamber opening.

      Note: If a pullthrough is issued in lieu of the rod, it is used as taught for the FN Rifle.

   b. Use the barrel cleaning brush to clean out the chamber.

   c. Oil the barrel, using flannelette 4 x 1½ inches.

   d. Clean and oil the flash hider.

   e. To clean the gas cylinder, attach the mop to the cylinder cleaning rod, wrap a piece of flannelette 4 x 4 inches around it and clean from the front end. Inspect and oil using flannelette of the same size in the cleaning rod eyelet.

   f. Clean the remainder of the gun with a lightly oiled rag.

   g. Assemble the gun and test the recoil mechanism.

   h. Clean and check spare parts and contents of the wallet.

10. Explain that, to ensure correct functioning, the gun must be clean and the gas regulator adjusted correctly, so that the gun has sufficient gas to operate reliably but not so much that it vibrates unduly.

ADVERSE CONDITIONS

11. *Damp, Humid Conditions.* Explain that in these conditions clean the gun as for daily cleaning. Inspect it frequently for rust and keep all parts well oiled.

12. *Desert Conditions.* It is important that under extreme dusty and sandy conditions the whole gun be kept dry. The gun should be dried by sweating the parts in the sun, and constantly wiping off the exuding oil. Cleaning brushes should be washed in soap and water and dried before use. Frequent inspection for rust is essential and if oil is used to remove rust, that part must be completely dried.

13. Question the squad.

CONCLUSION

14. Questions from and to the squad.

15. Summary of main teaching points, stressing that the gun must be unloaded before it is stripped and cleaned.

LESSON 3—LOADING, UNLOADING, SIGHTSETTING AND MAKING SAFE

INSTRUCTOR'S NOTES

1. *Aim.* To teach how to fill belts, set the sights, load, unload and make safe.

2. *Stores.* Guns with slings attached, drill rounds, belts, wallets and targets.

3. *Periods.* This lesson requires one period.

CONDUCT OF THE LESSON

4. *Preliminaries.* Safety precautions.

5. *Approach.* Explain the aim of the lesson.

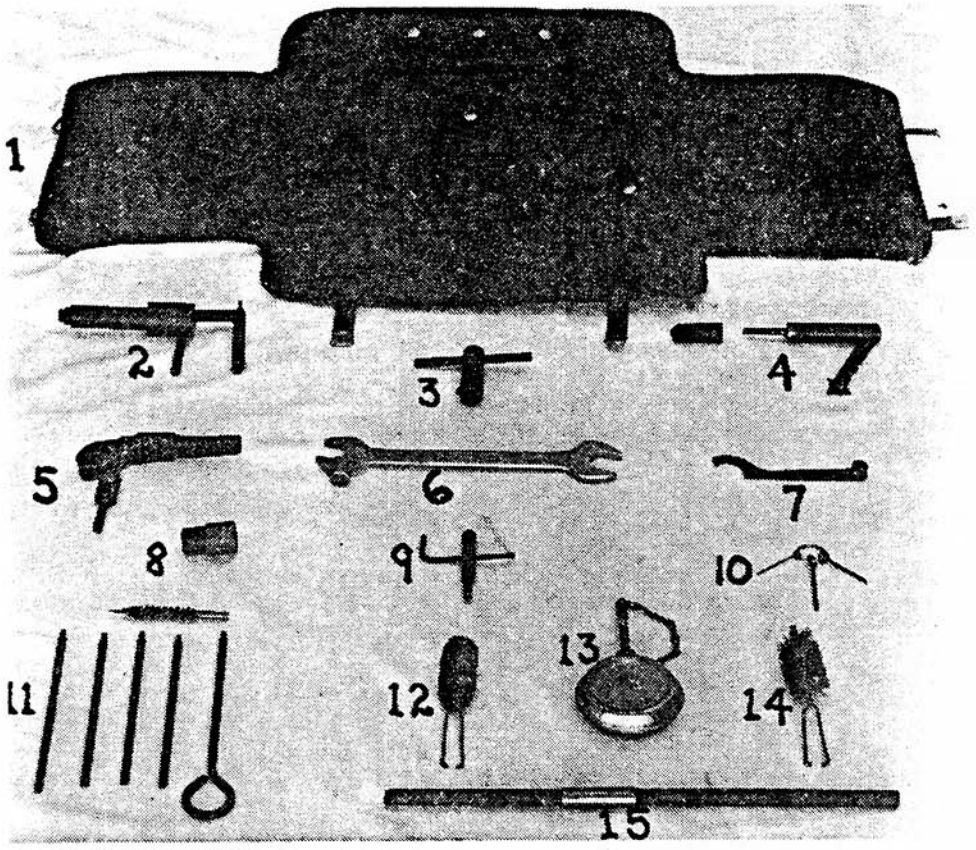


Fig 8—*Contents of the wallet.*

1. Wallet.
2. Combination tool and scraper.
3. Scraper for regulator sleeve.
4. Combination scraper for regulator.
5. Clearing plug.
6. Spanner special.
7. C Spanner.
8. Blank firing attachment.
9. Zeroing tool, rifle and MG.
10. Reamers for gas ports.
11. 4-Piece cleaning rod with eyelet and bristle brush.
12. Mop gas cylinder.
13. Oil can.
14. Wire brush gas cylinder.
15. Rod gas cylinder.

BELT FILLING

6. The normal belt is an articulated metal link belt of 50 rounds. Each round occupies a separate link and is held firm by a projecting rib which engages the groove of the cartridge case.

7. To fill a belt, start at the leading link and push each round home until the rib engages the groove at the base of the round.

8. To empty the belt, the round is pushed out towards the rib. This is done by pressing the nose of the round on to a firm surface.

9. Practise the squad. Leave belts filled.

10. It may be necessary before and during battle to link up belts. To do this, remove the round from the leading link of the belt to be joined and insert the connecting tab of the other belt into the slot of the link, so that the stud on the tab engages in the small recess. Lock the belts together by pushing in a round.

11. To uncouple the belts, remove the locking round, separate the belts and replace the round in the leading link.

12. Practise the squad. Leave belts uncoupled.

SIGHTSETTING

13. Explain and demonstrate:
    a. The backsight, when folded down, is used in the light role. It is marked in one hundreds of metres up to 800. The odd numbers are marked on the right side, even numbers on the left.
    b. To adjust the sights press in the catch and move the slide along the leaf, the top of the slide being set at the range required.
    c. For battle shooting the sight should be at 300 metres.
    d. The foresight is similar to the rifle.
14. Practise the squad in sightsetting.

LOADING AND UNLOADING

15. Explain and demonstrate:
    a. *Loading Positio*n. No 1 will sling the wallet over his right shoulder and lie straight behind the gun with his legs together. He will hold the small of the butt with the left hand with an overhand grip and the pistol grip with the right hand, forefinger outside the trigger guard. The gun must be held upright.
    b. *Loading*. On the command "Load" No 1 will check that the safety catch is at "Fire", open the cover and position the belt on the feed tray with the first round up against the cartridge stop. Hold it in that position with the left hand and close the cover with the right hand. Return the hands to the correct position on butt and pistol grip.
    c. *Action on Range Being Ordered*. When the range or "Ready" is ordered, set the sights, lift the butt into the shoulder and cock the gun, the right hand on the pistol grip with the forefinger on the trigger, left hand holding the small of the butt with an overhand grip.
    d. *Unloading*. On the command "Unload" No 1 will raise the butt into the shoulder if it is not already there, and cock the gun. Lower the butt, raise the cover and remove the belt. Ensure that the feed tray and chamber are clear, and close the cover. Ensure that the safety catch is at "Fire" and let the working parts go

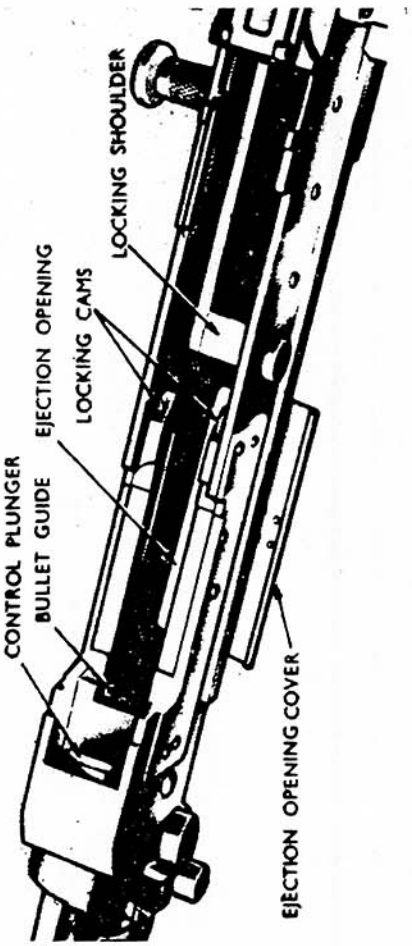

LOCKING SHOULDER
EJECTION OPENING
LOCKING CAMS
CONTROL PLUNGER
BULLET GUIDE
EJECTION OPENING COVER

Fig 9—*Body.*

forward under control. Close the ejection opening cover. Lower the sights if raised, stand up and report "Gun clear".

16. Practise the squad.

CLEAR GUN

17. If the order "Unload, clear gun" is given, the gunner will:
    a. Unload as taught.
    b. Open the top cover.
    c. Stand up and report "Gun clear".

18. Practise the squad.

MAKING SAFE

19. Load the gun; explain and demonstrate the actions to be carried out if the order "Make safe" or "prepare to move" is given:
    a. Unload as taught.
    b. Load a new belt and fold it over the gun so that it balances easily. Raise the carrying handle. Check that spare belts are put in pouches.
    c. On arrival at the new position fold the carrying handle down, remove the belt from the top of the gun and position it ready for firing.

20. Practise the squad.

LOADING AND UNLOADING, TWO-MAN GUN TEAM

21. Explain that although the gun can be handled by the gunner (No 1) alone, there may be situations when he must be assisted in handling the gun by a No 2 who may be either the gun controller or rifleman from the section. The No 2 is to be on the left of the gun close to the gunner.

22. During the actions of loading, when the gunner raises the cover, No 2 is to position the belt on the feed tray, ensuring that his fingers are clear before the cover is closed.

23. During the actions of unloading he is to remove the belt from the feed tray.

24. Further duties of the No 2 will be explained in later lessons.

25. Practise the squad.

CONCLUSION

26. Questions from and to the squad.

27. Summary of main teaching points.

LESSON 4—HOLDING, AIMING AND FIRING

INSTRUCTOR'S NOTES

1. *Aim.* To teach how to hold, aim and fire the gun.

2. *Stores.* Guns with slings attached, drill rounds, belts, wallets, eye discs, targets, spare barrels in metal cases.

3. *Notes.* Instructors must be conversant with details of checking faults in holding. Assistance in this subject can be obtained by a careful study of the contents of Section 3 of Chapter 2 of this pamphlet. The real test of a man's hold is to make him fire with live ammunition. Much can be done during instructional periods to teach him how to:

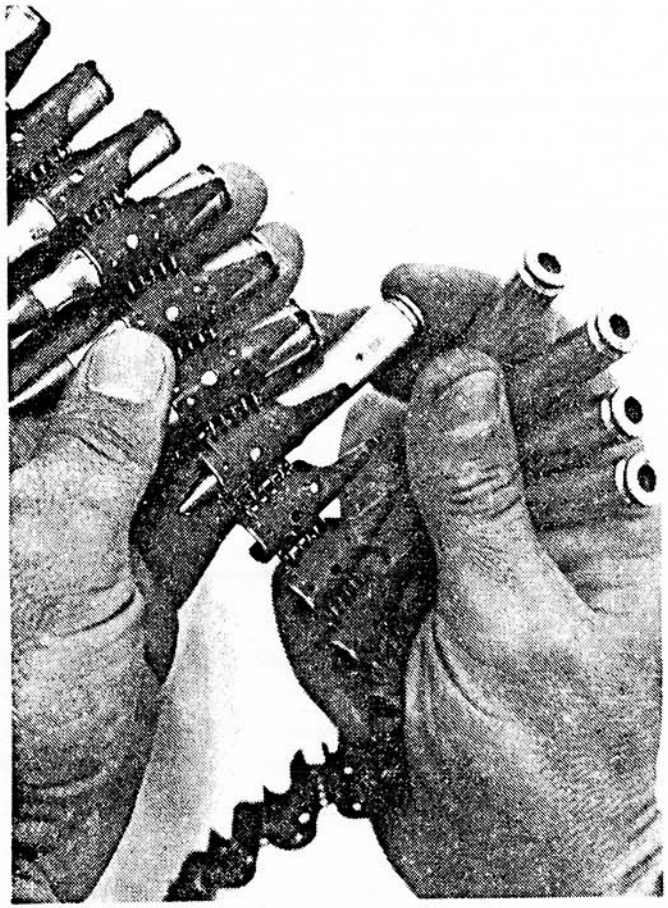


Fig 10—*Filling a belt.*

Fig 11—*Removing a round.*

a. Hold the gun correctly.
b. Operate the trigger without tightening or relaxing his grip.
c. Exert an even pressure with both hands, so that the group is not scattered.

4. To test the firmness of the hold pull the gun forward. To test the aim and trigger operation use an eye disc, but ensure that the gun is unloaded and do not cock and fire the gun for this.

5. This lesson requires two periods.

CONDUCT OF THE LESSON

6. *Preliminaries.*
   a. Safety precautions.
   b. Revise loading and unloading; leave guns loaded.

7. *Approach.* Explain the aim of the lesson.

HOLDING

8. Explain and demonstrate:
   a. When the range (or "Ready") is ordered, act as taught.
   b. Aiming is as for the rifle.
   c. When a target is indicated move as necessary until the gun, body and target are in line. The bipod must be square to the target.
   d. Move the whole of the body up to the gun until the shoulder is firmly in contact with the butt.
   e. Adjustments for height can be made by moving the elbows inwards or outwards until the position is correct.
   f. Pull the butt backwards and downwards with the left hand, the left elbow being as far forward as possible with comfort.
   g. Hold the pistol grip firmly with the right hand, forefinger on the trigger, and pull the gun backwards and upwards into the shoulder.
   h. Lock the hold by turning the wrist inwards. Rest the cheek on the left hand.
   j. Do not relax or tighten the hold during the firing of a burst.

9. Practise the squad. Leave guns loaded.

FIRING

10. Explain and demonstrate:
   a. On the command "Fire", when the aim is correct, press the trigger long enough to fire a burst of about 3 to 5 rounds, then let the trigger go fully forward.
   b. Observation of the burst is most important. The moment the trigger is released the left eye should be opened and the area of the target observed to ascertain the strike of the shots.
   c. Make the necessary alterations to sights or aim and continue firing at the normal rate of about 25 rounds per minute.
   d. On the command "Stop", lower the butt and apply the safety catch. Connect another belt if necessary.
   e. On the order "Go on", continue firing.
   f. On the order "Make safe", act as taught.
   g. If a No 2 is present it is his task to see that there is always a supply of ammunition for the gun. It is not necessary for No 2

Fig 12—*Loading position.*

Fig 13—*Loading.*

to hold the belt during firing, but he may be required to straighten the belt to assist correct feed, particularly when belts have been joined together.

11. Practise the squad.

12. *Length of Bursts.* Explain:
    a. A burst of 3 to 5 rounds is necessary to observe the strike of shots in order to correct errors for range and wind allowance. However, the length of burst will depend on the type of target, the range and the skill of the firer.
    b. For example, a burst of 8 to 10 rounds spreads more but gives a better chance of hitting a moving target and may be necessary at very short ranges against a mass attack.

13. *Rate of Fire.* Explain:
    a. Rapid fire is the fastest rate at which the gunner can maintain his accuracy and is only to be used when the target warrants it, ie, a large number of enemy in the open at short range, or it may be used for short periods when "shooting in" an attack by friendly forces.
    b. Normal rates of fire will not overheat the barrel but rapid rates and long bursts for any length of time will. The firer must use his common sense and regulate his rate of fire and length of bursts to the tactical situation, remembering that overheating quickly wears out the barrel and affects its accuracy. DO NOT WASTE AMMUNITION.
    c. Should the section commander require rapid fire he is to order "Rapid". The firer is to bring the gun into the shoulder, prepare to fire and when the order "Fire" is given, he is to fire at a rate of about 100 rounds (two belts) per minute.
    d. If possible during a lull in firing the gun should be unloaded, the action cocked and the cover raised so that the gun may cool off.

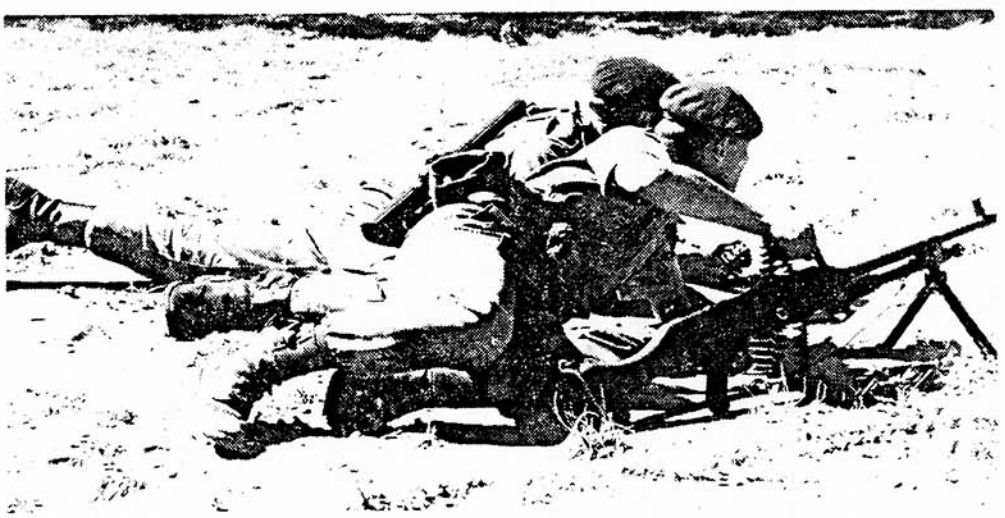
14. *Moving Targets.* Explain:
    a. Select a point of aim well in front of the line of advance of the moving target. Aim at it and when the target is two widths from that point of aim fire a long burst of 8 to 10 rounds. The most likely targets are soft-skinned vehicles and unbattened AFVs.

15. Practise the squad.

SUSTAINED FIRE

16. Using one of the squad as No 1 and the instructor acting as No 2, explain and demonstrate:
    a. If fire has to be delivered for long periods, whether at the normal or the rapid rate, the barrel should be changed after every 400 rounds (8 belts). No 2 will assist by joining belts and changing barrels. The second barrel is carried in a metal case.
    b. When No 2 has joined the eighth belt, he warns the gunner "Barrel". He then prepares the new barrel for use and checks that the gas regulator is correctly set.
    c. When the belt has been expended the gunner cocks the gun, and orders "Barrel". While No 2 changes the barrels the gunner must ensure that the gun is held upright.

Fig 14—*The gun made safe.*



d. When the new barrel has been placed on the gun, the gunner will open the top cover and No 2 will load a new belt. The gunner closes the cover, and continues firing.

17. Practise the squad.

CONCLUSION

18. Questions from and to the squad.

19. Summary of main teaching points.

PRACTICE 1—LOADING, UNLOADING AND FIRING

INSTRUCTOR'S NOTES

1. *Aim.* To give the soldier practice in loading, unloading, holding and firing the gun.

2. *Stores.* Guns with slings attached, drill rounds, belts, wallets, targets, spare barrels in metal cases.

CONDUCT OF THE LESSON

3. *Preliminaries.* Safety precautions.

4. *Approach.*
   a. Explain the aim of the lesson.
   b. Explain the conditions of Training Tests 1, 2 and 3.

PRACTICE

5. Give the men practice in loading, unloading, making safe and firing. Competitions, perhaps based on training tests, will help to keep the men interested.

6. Practice should be given with the gunner assisted by a No 2.

CONCLUSION

7. Questions from and to the squad.

8. Summarize the progress made.

LESSON 5—IMMEDIATE ACTION AND GAS STOPPAGE DRILL

INSTRUCTOR'S NOTES

1. *Aim.* To teach the soldier the drills to be applied if the gun stops firing.

2. *Stores.* Guns with slings attached, drill rounds, belts, wallets and targets.

3. *Periods.* This lesson requires one period.

CONDUCT OF THE LESSON

4. *Preliminaries.*
   a. Safety precautions.
   b. Revise holding and firing (Lesson 4), and leave guns loaded.

5. *Approach.*
   a. If the gun is correctly cleaned and prepared for firing, stoppages will seldom occur.
   b. If a stoppage does occur, the gunner must know how to remedy it quickly so that firing can be continued without undue loss of time.

Fig 15—*Holding.*

Fig 16—*Correct aim.*

HOW THE GUN WORKS

6. Explain that the gun is loaded by hand and cocked. When the round is fired the gas drives the piston group to the rear, ejecting the empty case. The return spring and buffer drives the piston forward, loading a fresh round, which is then fired. This action goes on as long as the trigger is kept pressed and there are rounds in the belt.

IMMEDIATE ACTION (IA) DRILL

7. Explain and demonstrate—if the gun stops or fails to fire:
   a. Cock the gun.
   b. Lower the butt.
   c. Change the belt.
   d. Re-aim and continue firing.
8. The following stoppages will be remedied by applying the IA:
   a. Expended belt.
   b. Misfed belt.
   c. Damaged rounds.
   d. Live round partly fed, due to a damaged link.
   e. Misfired round.
   f. Hard extraction.
9. Questions from and to the squad.
10. Practise the squad. Order "Gun firing all right—gun stops". When the actions have been completed, order "Gun firing all right".
11. Explain and demonstrate:
   a. On attempting to carry out the IA if the cocking handle cannot be pulled fully to the rear, hold it as far back as possible and lower the butt.
   b. Open the cover and pull the cocking handle fully to the rear.
   c. Load a new belt and carry on firing.
12. Explain that the cocking handle cannot be pulled fully to the rear due to a damaged link jamming the feed pawls.
13. Practise the squad.

GAS STOPPAGE DRILL

14. Explain and demonstrate that if, after applying the IA the gun fires a few rounds and again stops, the gunner is to:
   a. Cock the gun.
   b. Lower the butt.
   c. Put the safety catch to "Safe".
   d. Adjust for more gas by one click. If the regulator is hot, use the nose of a round.
   e. Put the safety catch to "Fire" and continue firing.
15. If the stoppage recurs, repeat the drill until the gun functions satisfactorily.
16. If the stoppage cannot be remedied by this drill, clean and lubricate the working parts.
17. Practise the squad. When the IA has been completed, order "Gun fires a few more rounds and stops again". When the gas adjustment has been made, order "Gun firing all right".

CONCLUSION

18. Questions from and to the squad.
19. Sum up.

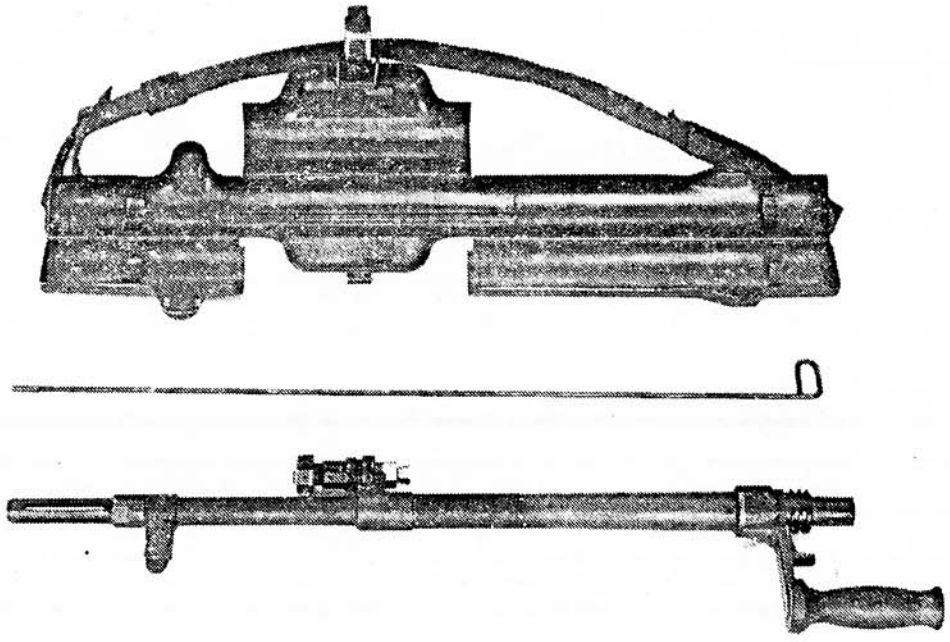


Fig 17—*Metal case, second barrel and rod.*

LESSON 6—MECHANISM

INSTRUCTOR'S NOTES

1. *Aim.* To teach the detailed mechanism of the gun.

2. *Stores.* Guns, drill rounds, belts, empty case, diagrams of recoil mechanism and trigger group.

3. *Notes.*
   a. Explain and demonstrate each phase and then question the squad.
   b. To be taught to NCOs only.
   c. This lesson requires two periods.

CONDUCT OF THE LESSON

4. *Preliminaries.*
   a. Safety precautions.
   b. Remove recoil mechanism, pistol grip and barrel of one gun and leave another assembled.
   c. Question the squad on how the gun works.

5. *Approach.* If you understand the mechanism of the gun you will find it easier to understand stoppages and put them right.

DETAILED MECHANISM

6. *Actions on Cocking the Gun.*
   a. When the gun is cocked the piston and breech block are pulled to the rear by a stud on the inside of the cocking handle slide engaging a recess on the piston extension. During its backward action the rear end of the piston compresses the return spring and rod. The projection on the ejection opening cover is depressed by the piston extension and the ejection opening cover is opened under pressure of its spring.
   b. When the working parts are fully to the rear the sear rises and engages with the bent on the underside of the piston extension.

Note: The cocking handle must always be pushed fully forward after cocking the gun. If the gun is partially cocked a dangerous situation may occur, in which the breech block may be held back by the base of a round, and a sudden jolt may release it and fire a round.

7. Question the squad.

8. *Forward Action, Action of the Feed.*
   a. When the gun is ready to fire, the first round is positioned in line with the chamber and held in position by the cartridge guide. The second round in the belt is held by the outer pawls.
   b. On pressing the trigger the nose of the sear is depressed, thus freeing the piston extension and allowing the return spring to push the working parts forward.
   c. The feed pieces strike the base of the cartridge and force it out of the link and, assisted by the cartridge guide, feed it into the chamber. The extractor rides over the base of the round and the ejector is compressed.

9. Question the squad.

10. *Breech Locking and Firing of the First Round.* As the round is fed into the chamber the locking lever is forced fully down by the locking cams, slowing down the forward movement of the breech block. The piston extension, still moving forward, causes the locking lever link to

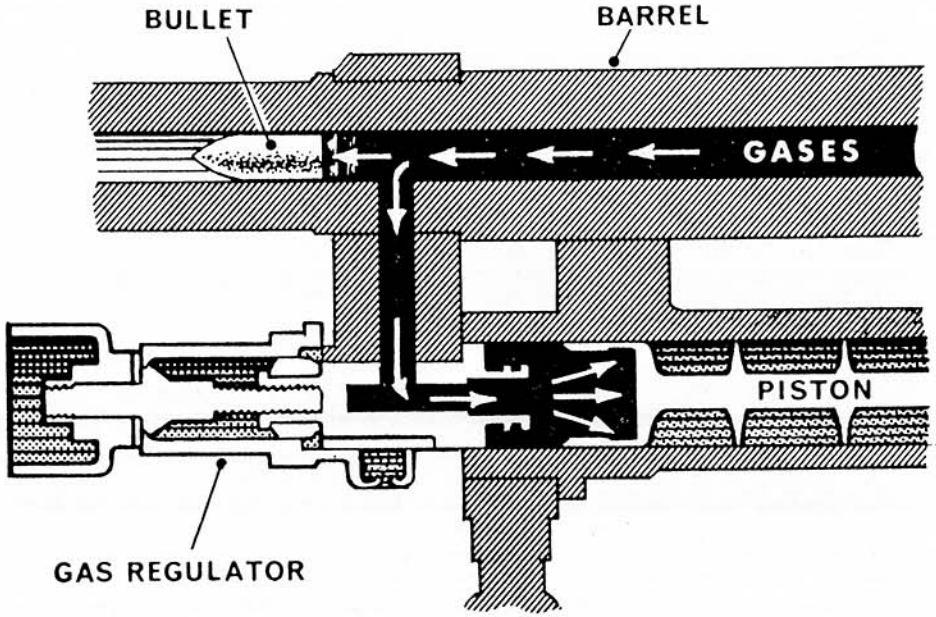


Fig 18—*Action of the gases.*

rotate downward and backward, thus forcing the arms down to their fullest extent in front of the locking shoulder. The round is now fully home with the breech mechanically locked. The final forward movement of the piston and piston extension drives the firing pin through the breech block on to the cartridge cap and fires the round.

11. Question the squad.

12. *Rearward Action, Unlocking the Breech, Extraction and Ejection of the Empty Case.*

a. When the round is fired some of the gases pass through the gas vent into the gas cylinder and, striking the head of the piston, drive it to the rear.

b. As soon as the piston begins to move, the firing pin is withdrawn into the breech block. During the primary movement of the piston, ie, about five-eighths of an inch, the breech remains locked whilst the bullet travels the distance from the gas vent to the muzzle.

c. Continued movement of the piston causes the locking lever link to rotate forward and upward on its axis, lifting the locking lever out of engagement of the locking cams; the breech block is jerked slightly backwards, effecting primary extraction.

d. The breech is now fully unlocked. As the breech block starts its backward movement the extractor withdraws the empty case from the chamber. When the case is freed from the chamber the ejector forces it from the face of the breech block out through the ejection slot. The working parts continue to the rear, compressing the return spring and rebounding from the buffer.

13. Sufficient gas should always be made available by gas regulator adjustment to cause the working parts to rebound off the buffer.

14. Question the squad.

15. *Subsequent Shots and End of Burst.* The action of feeding and firing the rounds will continue as long as the trigger is kept pressed or until the belt is expended:

a. As long as the trigger is pressed the sear is held down, allowing the recoil mechanism to automatically feed and fire subsequent rounds, ejecting empty cases.

b. When the trigger is released, the sear is allowed to rise and engage the recoil mechanism, holding it to the rear.

16. Question the squad.

17. *Action of the Feed Mechanism.*

a. *Forward Movement.* During the forward movement of the breech block the feed roller, being engaged in the feed arm, operates the arm and forces it to the right. At the same time the inner pawl, moving to the left, rides over the next round in the belt and engages behind it. The outer pawls at the same time carry the round to the half-feed position. At this stage both inner and outer pawls are engaged behind the next round to be fired.

b. *Rearward Movement.* During the first two inches of rearward travel of the breech block the feed roller operates the front end of the feed arm from right to left. The inner pawl, moving to the right, carries the next round to be fired from the half-feed position to the fully-fed position. At the same time the outer pawls move to the left and engage behind the next round in the belt.

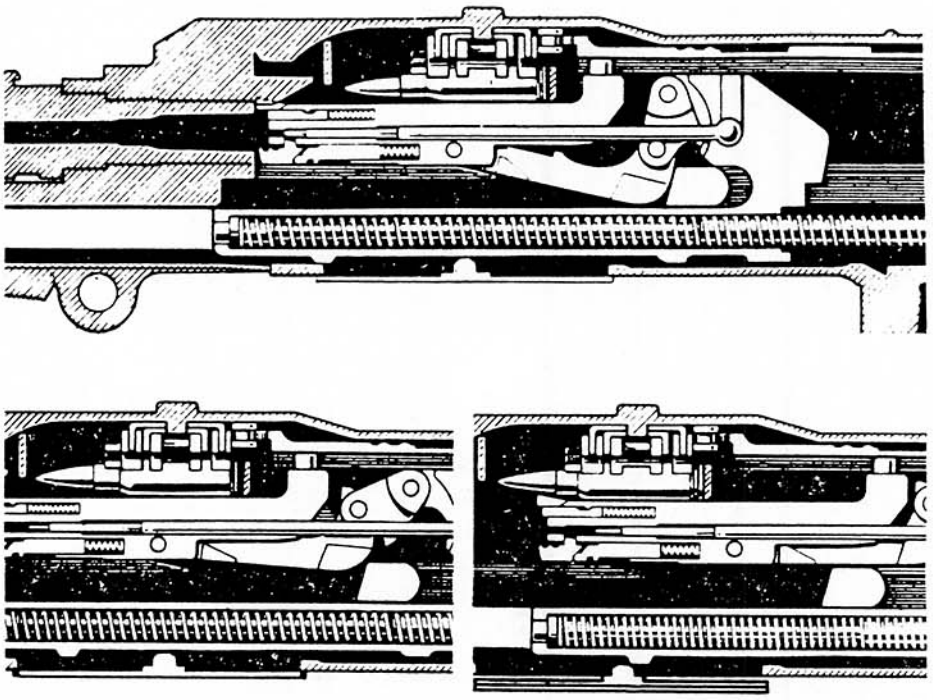


Fig 19—*Cocking action.*

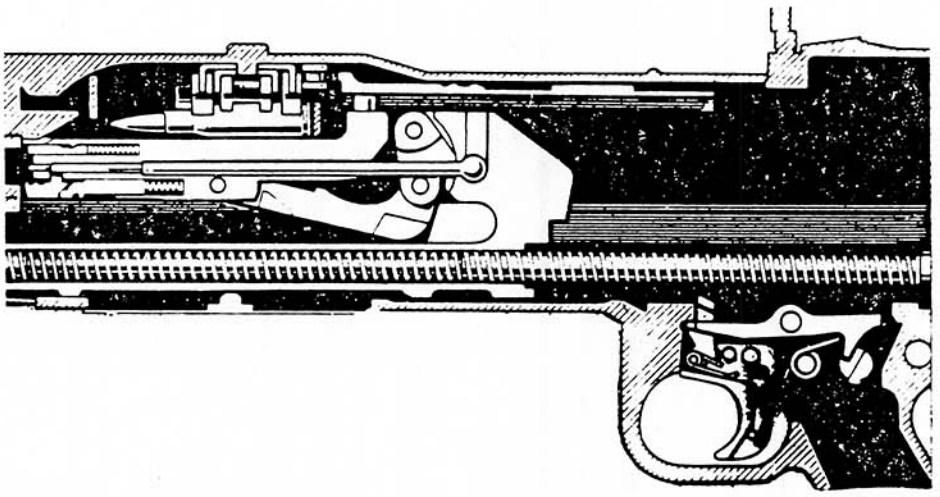


Fig 20—*Gun loaded.*

18. Question the squad.

19. *Action of the Trigger Mechanism.*

    a. During the backward action the rear undersurface of the piston extension rotates the spring-loaded tripping lever and disengages it from the tail of the sear. The nose of the sear rises under the pressure of its spring. It is then momentarily depressed by the piston extension before engaging the bent. During this action the tripping lever is returned to its forward position, ready to engage the tail of the sear when the trigger is pressed.

    b. On pressing the trigger the sear and trigger spring are compressed, the tripping lever is pulled down and the sear actuating bar pushes the tail of the sear upwards until it engages in the upper bent of the tripping lever. At the same time the nose of the sear is depressed, thus freeing the piston extension and allowing the return spring to push the working parts forward.

20. Question the squad.

21. *Action of the Safety Catch.*

    a. The safety catch is recessed to take a lug positioned on the underside of the sear. When the safety catch is put to "F" (Fire) this recess is directly under the sear lug and allows the sear to be operated. When the safety catch is put to "S" (Safe) the recess is not in line with the lug, thus preventing operation of the sear.

    b. When the sear is in the lowered position the safety catch cannot be moved because the lug of the sear is in the recess of the safety catch.

    c. If the gun is assembled with the sear in the raised position and the safety catch at "S" the gun cannot be cocked because the sear is locked in the up position.

    d. Under no circumstances is the safety catch to be moved whilst the action of cocking is taking place. If the safety catch is moved a dangerous stoppage may occur. (See para 6).

22. Question the squad.

CONCLUSION

23. Questions from and to the squad.

24. Summary of main teaching points.

LESSON 7—OTHER STOPPAGES

INSTRUCTOR'S NOTES

1. *Aim.* To teach the soldier the causes of stoppages and how to rectify them.

2. *Stores.* Guns with slings attached, spare barrels in metal cases, drill rounds, belts, wallets and targets.

3. *Notes.*

    a. Drill rounds are not to be used as clearing plugs.

    b. This lesson requires one period.

CONDUCT OF THE LESSON

4. *Preliminaries.*

    a. Safety precautions.

    b. Revise IA and gas stoppage.

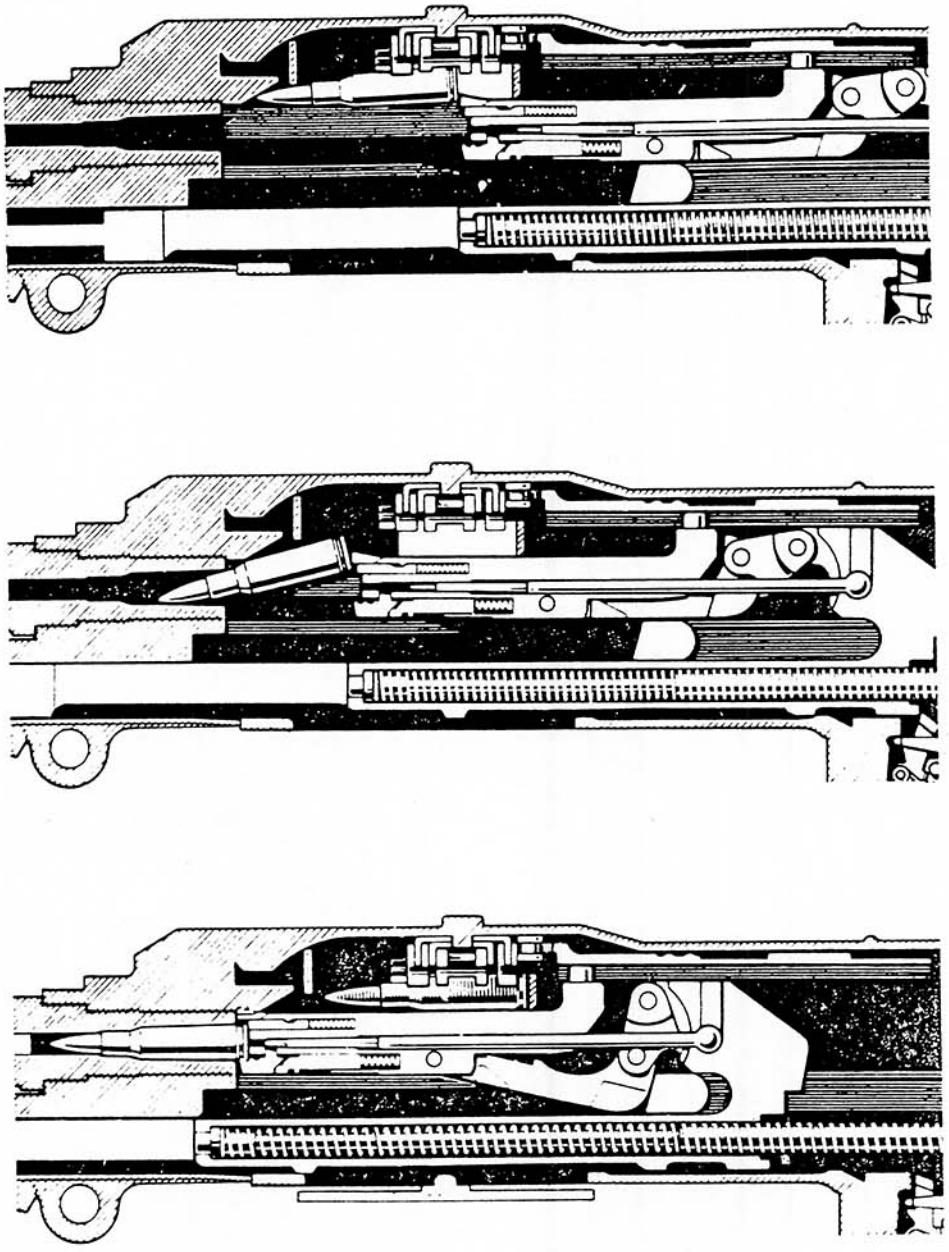


Fig 21—*Forward action.*

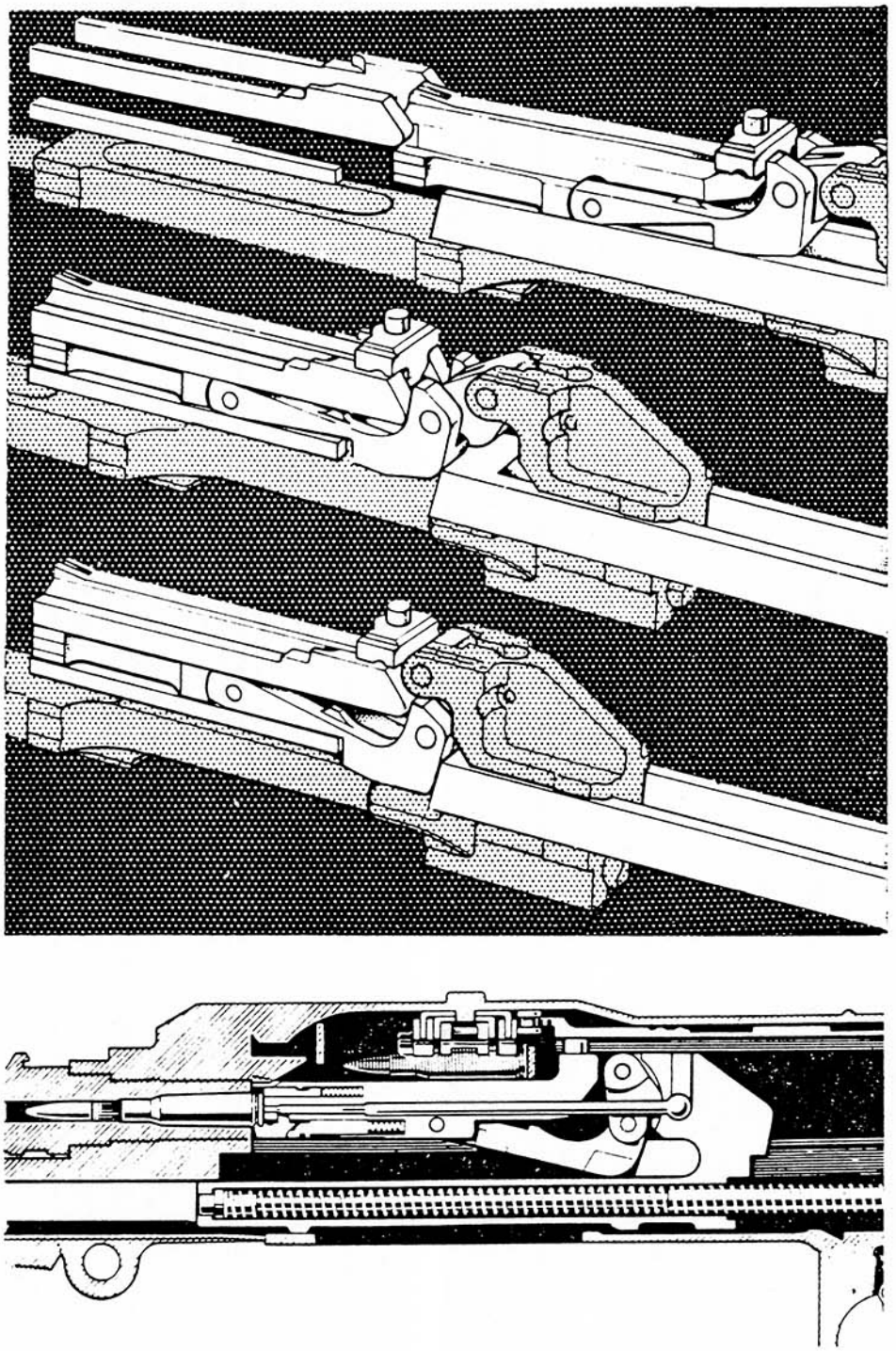


Fig 22—*Breech locking and firing a round.*

5. *Approach*. Stoppages caused by broken parts or obstructions are rare, but the gunner must be able to recognize and remedy such causes in order to get the gun firing again quickly.

FURTHER STOPPAGES

6. Explain and demonstrate: After you have applied the IA if the gun will not fire:

a. Cock the gun, open the cover, remove the belt, raise the feed tray and inspect the interior for:
   i. Obstruction.
   ii. Empty case in chamber.

b. If there is an obstruction, remove it, reload with the same belt and continue firing.

c. If an empty case is seen in the chamber, this may be due to a broken extractor or spring. Allow the working parts to go forward, remove the recoil mechanism and change the defective part. Clear the obstruction, reassemble, load and continue firing.

7. Practise the squad. When IA is complete, order "Gun won't fire". When the gunner inspects the interior order either "Obstruction" or "Empty case in chamber". When the drill has been applied order "Gun firing all right".

8. Explain and demonstrate: If no obstruction or empty case is found, remove the barrel and check for a separated case. If a separated case is found:

a. Change barrels, ensuring that the gas regulator of the fresh barrel is set correctly.

b. Load and carry on firing.

c. At the first available opportunity, remove the separated case using the clearing plug.

Note: If the second barrel is not with the gun, the barrel on the gun must be taken off in order to remove the separated case.

9. Practise the squad. Order "No obstruction visible". When the drill has been carried out the instructor is to indicate whether a separated case has been found, ie, "Separated case". On completion, order "Gun firing all right".

10. Explain and demonstrate: If no separated case is found, allow the working parts to go forward, remove and examine the recoil mechanism for:

a. Weak or broken return spring.

b. Broken firing pin.

c. Broken ejector or weak ejector spring.

11. If available, replace the defective part, reassemble, load, cock and continue firing.

12. Practise the squad. Order "No separated case" and when the gunner inspects the recoil mechanism, state either "Broken return spring", "Broken ejector" or "weak ejector spring", etc. When the drill has been completed, order "Gun firing all right".

13. Explain and demonstrate: After applying the IA if the gun will not fire and you cannot fully cock the gun, act as taught, but before reloading open the cover and examine the feed pawls and springs. If they are not working freely, clean and oil them. Reload, cock and carry on firing.

14. Practise the squad. Order "Gun firing all right—gun stops". When the actions have been completed and the trigger pressed, order "Gun won't

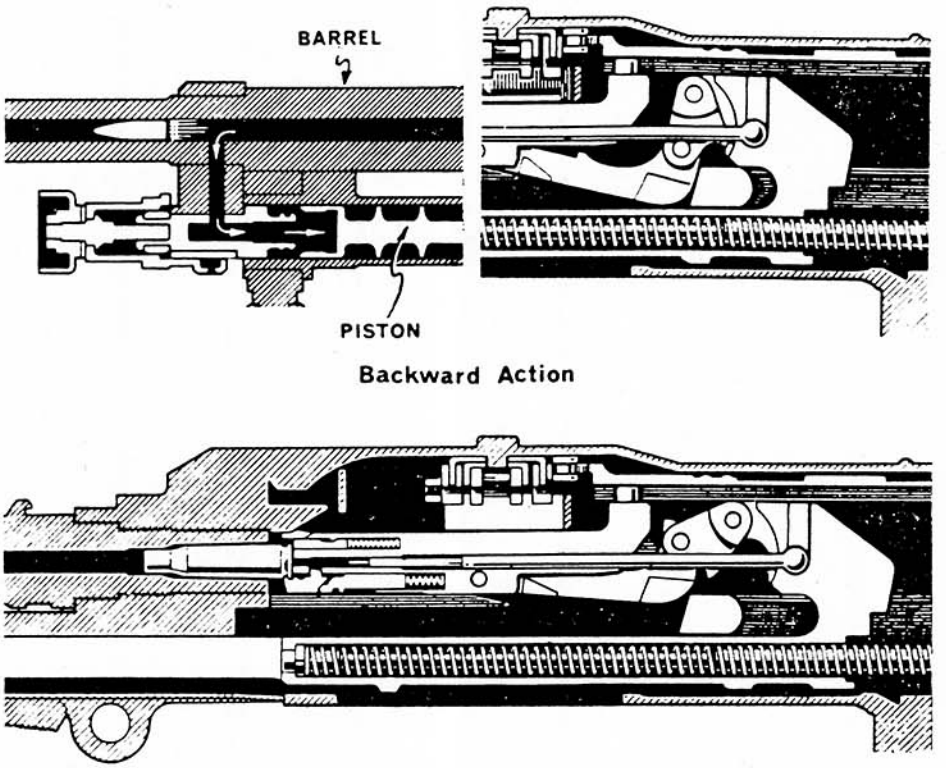


Fig 23—*Unlocking the breech.*

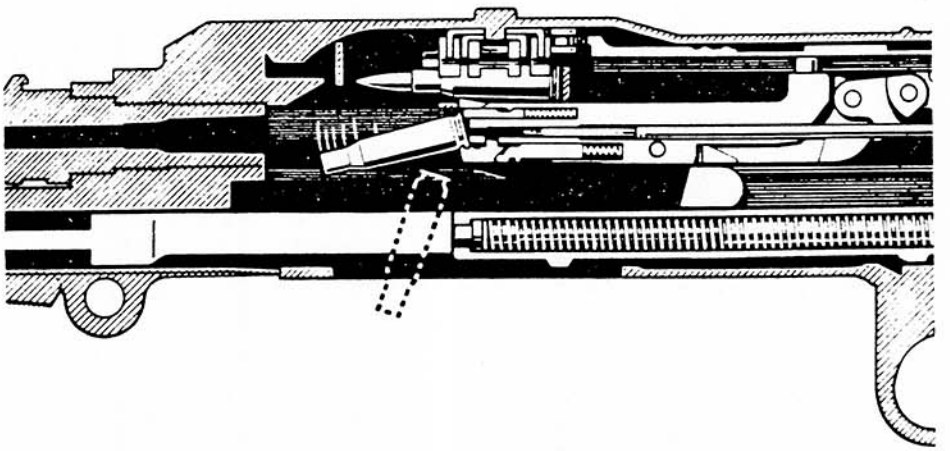


Fig 24—*Extraction of the round.*

fire", and when the gunner reaches forward to cock the action, order "and will not cock".

RUNAWAY GUN

15. Explain and demonstrate: This situation will normally be caused by incorrect adjustment of the gas regulator. If the gun continues to fire after the trigger has been released:

a. Hold the gun firmly in the shoulder.
b. Twist the belt at the point of entry into the feedway.
c. When the gun stops, cock the gun, put the safety catch to "Safe", adjust for more gas, put the safety catch to "Fire" and continue firing.

16. Practise the squad. Order "Gun firing all right", "Stop", "Runaway gun". When the necessary actions have been completed, order "Gun firing all right".

17. Explain that No 2 will not always be in a position to help No 1, but if he is then he would assist where possible, eg, to change barrels, to remove the separated case, etc.

18. Practise the squad in pairs in all stoppage drills.

CONCLUSION

19. Questions from and to the squad.

20. Sum up.

PRACTICE 2—IMMEDIATE ACTION AND STOPPAGES

INSTRUCTOR'S NOTES

1. *Aim.* To give men practice in carrying out the IA and remedying stoppages.

2. *Stores.* Guns with slings attached, spare barrels in cases, drill rounds, belts, wallets and targets.

CONDUCT OF THE LESSON

3. *Preliminaries.* Safety precautions.

4. *Approach.*

a. Explain the aim of the lesson.
b. Explain the conditions of Training Test No 4.

PRACTICE

5. Give the men practice, as a gunner working alone and, later, assisted by a No 2:

a. In carrying out IA and curing a stoppage caused by lack of gas.
b. Remedying stoppages caused by obstruction.
c. Remedying stoppages caused by broken or weak parts.
d. In dealing with a runaway gun.

6. Question the men on the causes of these stoppages and how the remedies cure them.

COMPETITIONS

7. Organize simple competitions on the same lines as the practice, or base them on the Training Tests.

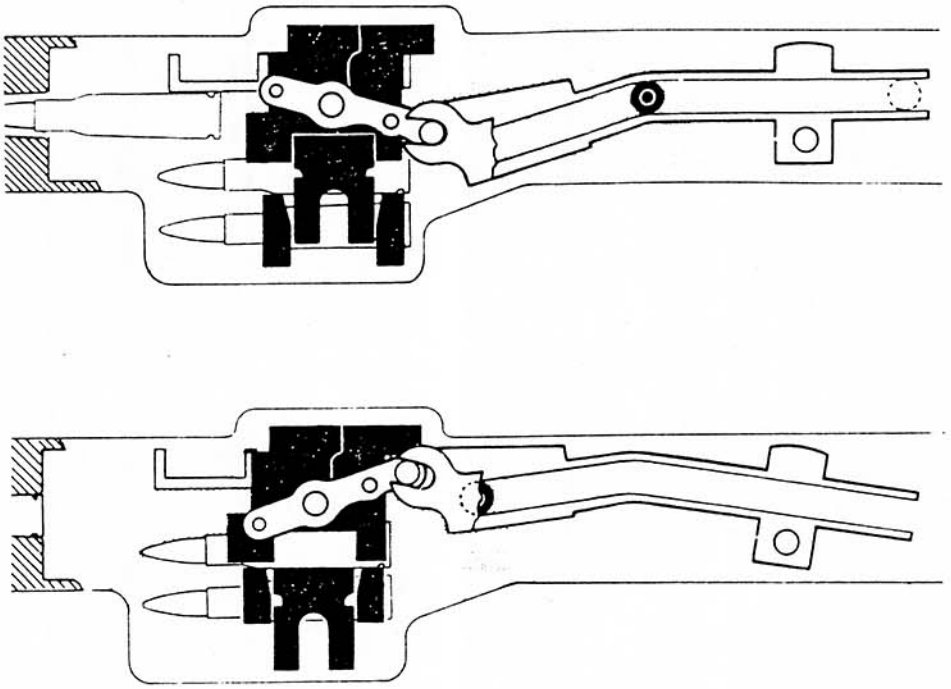


Fig 25—*Feed mechanism forward movement.*

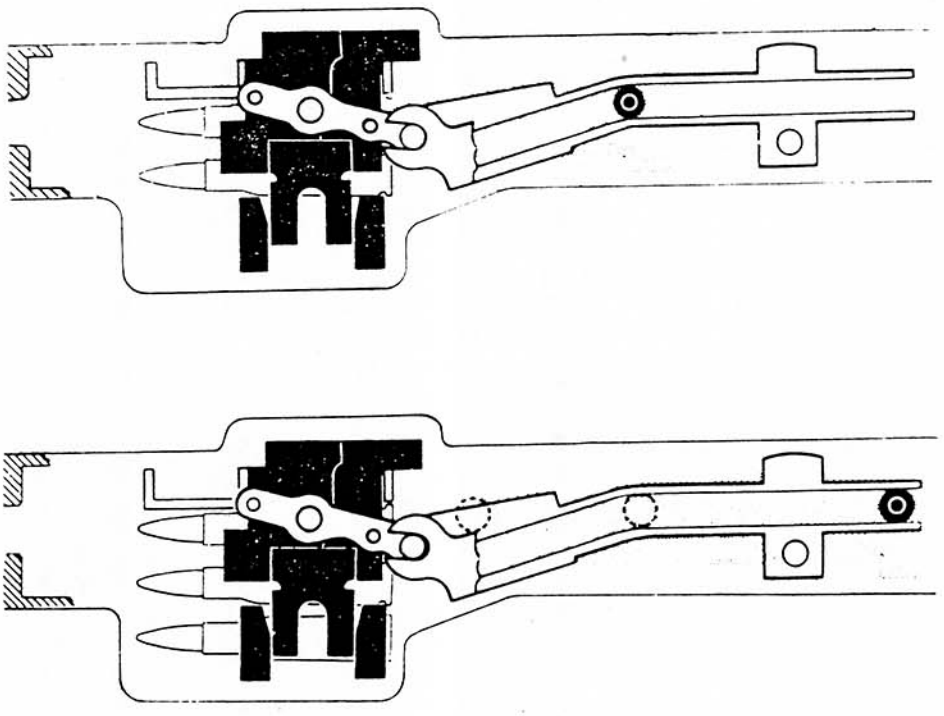


Fig 26—*Feed mechanism backward movement.*

CONCLUSION

8. Questions from and to the squad.

9. Summarize the progress made and impress on the men the standard required to pass the Training Tests.

LIVE FIRING 1—INTRODUCTORY SHOOT, PREPARATION FOR FIRING AND CLEANING

INSTRUCTOR'S NOTES

1. *Aim.* To teach the soldier how to prepare the gun for firing, to let the men fire it and to teach them how to clean it after firing.

2. *Stores.* Guns with slings attached, wallets, cleaning materials, ammunition and normal range stores.

3. *Notes.*

   a. If this is fired at 25 metres a white screen should be used. Each firer should have four aiming marks spaced in the form of a square and about one foot apart.

   b. Guns must have been zeroed and the gas regulator adjusted correctly before this lesson is taught.

   c. Coaching is most important at this stage of training. (See Chapter 2, Section 3).

   d. Range work should not be hurried and the shoots should be repeated as often as time and ammunition permit.

   e. Tracer ammunition is not to be used on the 25 metres range.

   f. In preparation and cleaning of the gun the squad should imitate the actions of the instructor.

CONDUCT OF THE LESSON

4. *Preliminaries.* Safety precautions.

5. *Approach.* Explain that to ensure correct functioning the gun must be clean and the gas regulator adjusted correctly.

CLEANING BEFORE FIRING

6. Explain and demonstrate the preparation of the gun for firing:

   a. Strip the gun as for daily cleaning.

   b. Slide back the dust cover and thoroughly clean the guide ribs in the body, then lightly oil them. Slide the dust cover forward.

   c. Clean the remainder of the gun and leave dry.

   d. Replace the barrel.

7. As the gun is assembled, oil only the following parts:

   a. The bearing surfaces of the breech block and piston extension.

   b. The grooves in which all guide ribs work.

   c. Locking cams and locking shoulder.

   d. The feed arm, especially the channel in which the feed roller moves.

   e. The return spring and butt catch.

   f. The trigger mechanism. Ensure that the safety catch is at "F" before assembly of the breech block and piston in the gun.

8. The exterior of the gun should be dried, especially the barrel and gas affected parts.

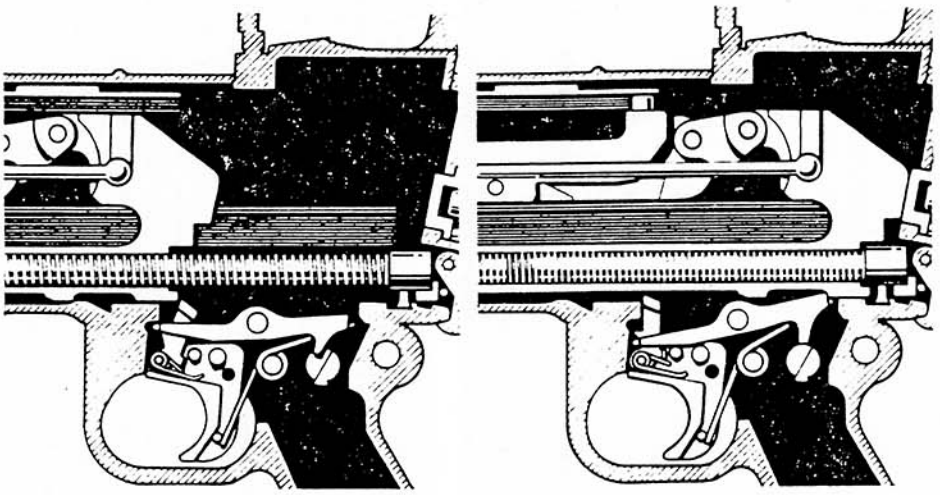


Fig 27—*Cocking.*

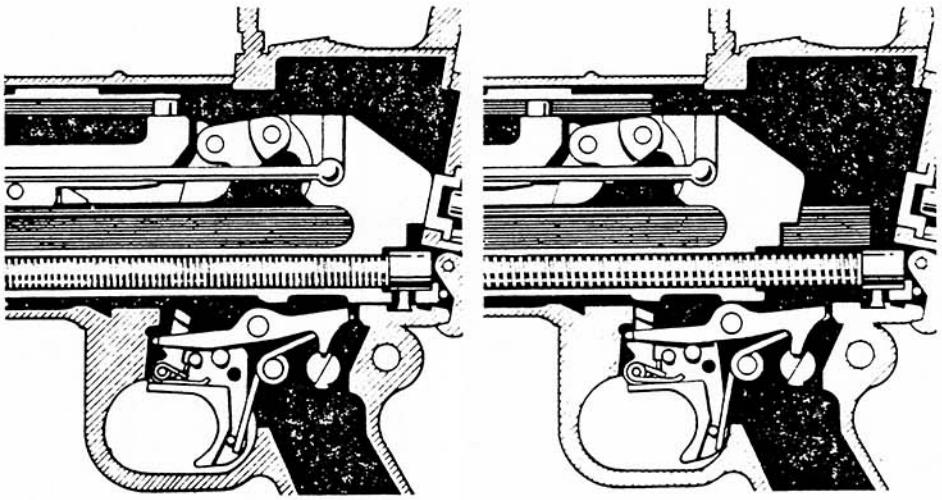


Fig 28—*Trigger pressed.*

9. When the gun has been assembled, press the trigger and, keeping it pressed, move the cocking handle backwards and forwards a few times.

10. *Adverse Conditions.* When preparing the gun for firing in adverse conditions, eg, sand or desert conditions, the gas regulator is to be adjusted for maximum gas. Graphite grease may be used sparingly.

11. *Examination.* When the gun has been prepared for firing:

a. With the spanner check that the flash hider is screwed on tightly.
b. Ensure that the gas regulator is at the correct setting.
c. Ensure that the barrel is locked firmly in position.
d. Check sights for tightness.
e. Ensure that there is sufficient oil and cleaning materials.
f. Check and repack wallet.

INTRODUCTORY SHOOT

12. Explain the conditions of the shoot and Test No 7:

a. Each man fires 15 rounds in bursts of 3 to 5 rounds into the stop butt to get the feel of the gun.
b. Fire one burst of 3 to 5 rounds at each of the four one-inch black aiming marks.

13. Discuss the results on the target.

14. Repeat if time and ammunition permit.

CARE DURING FIRING

15. Every opportunity must be taken to clean, examine and oil the gun during lulls in firing. Special attention should be given to the chamber and gas affected parts. If time permits the breech block and piston should be removed, all fouling wiped off and then re-oiled as before. If this is not possible, open the cover and squirt a few drops of oil on the locking levers, guide ribs and primary extraction face.

CLEANING AFTER FIRING

16. On completion of firing the gun must be thoroughly cleaned. Strip the gun and clean it, using only the materials provided. Do not use emery or other abrasives to clean the gun. (See Chapter 2, Section 9, Technical Instruction Arm 1/71, Care and Maintenance of Small Arms and Automatic Weapons).

17. The gun is easier to clean immediately after firing, whilst still warm. If this is not possible, thoroughly oil all gas affected parts. This will assist in cleaning later.

18. Clean as follows:

a. *The Barrel.* Clean the barrel and chamber as laid down in Technical Instruction Arm 1/71. Points to note:
   i. Join up the cleaning rod and clean out the bore with oily flannelette 4 x 2 inches, then dry it out.
   ii. Inspect the bore and chamber. If fouling is difficult to remove, attach the barrel cleaning brush, oil it and push through vigorously.
   iii. Dry and inspect the bore again.
   iv. Oil the bore using flannelette 4 x 1½ inches.
   v. Clean the outside of the barrel. Remove all fouling from the gas regulator with the reamers and scrapers provided. Clean the flash hider.

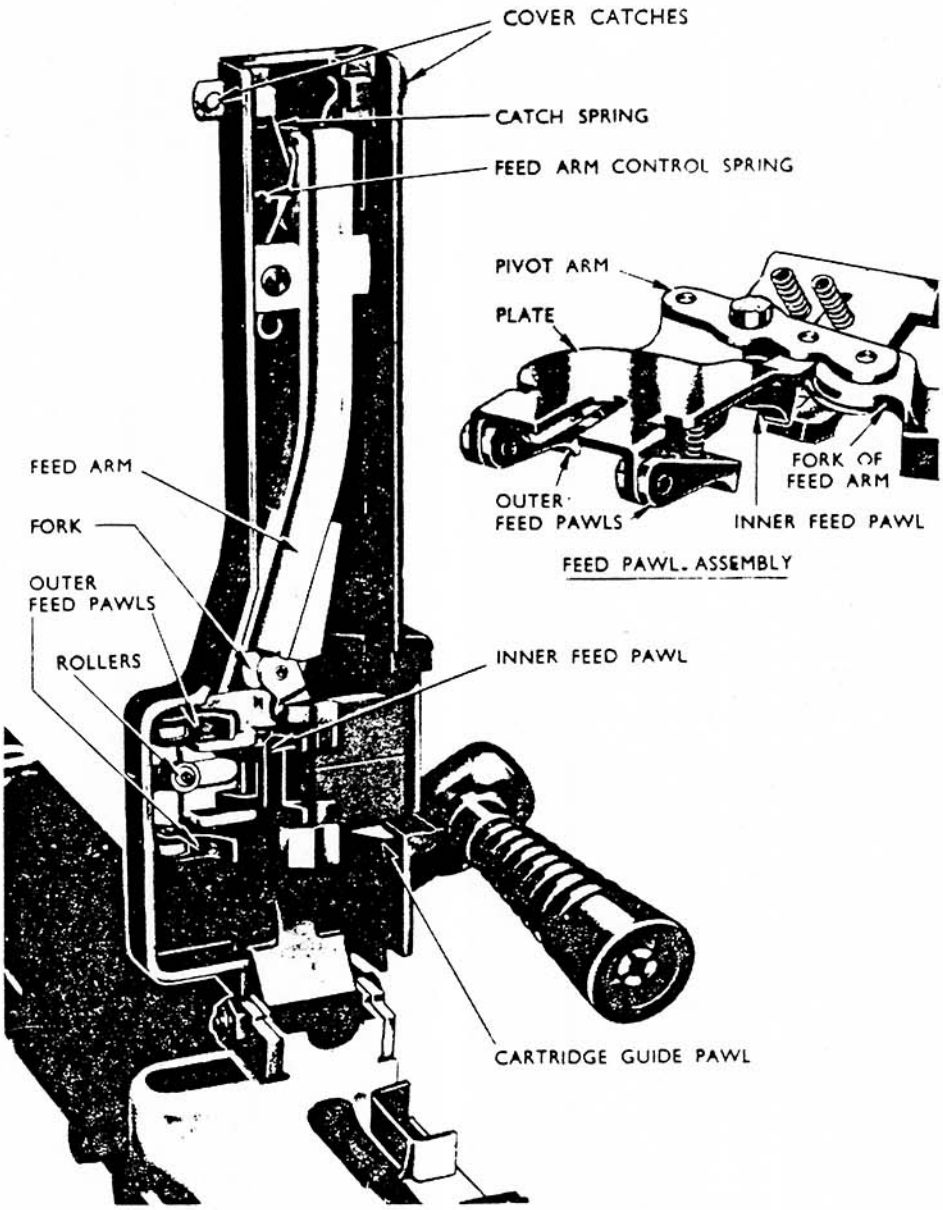


Fig 29—*Feed mechanism assembly.*

b. *The Body Group.* Clean the cannelure and gas escape holes at the front of the cylinder with the cleaning tools provided. Clean the gas cylinder with the wire brush and mop until all fouling has been removed. Dry out with a piece of flannelette rolled round the mop, then oil. Clean the remainder of the body especially the guide grooves and feed mechanism. Open the dust cover and clean the guide ribs. Close the dust cover.

c. *The Piston Group.* Clean the piston head with the tool provided, inspecting frequently until all fouling has been removed. Clean the rest of the piston, especially the face of the breech block.

19. Oil the parts and assemble the gun. Clean and check all spares.

CARE OF THE WEAPON AFTER FIRING

20. *Normal Conditions.* The bore, chamber, piston and other gas-affected parts must be thoroughly cleaned, inspected and re-oiled for several days after firing.

21. *Dusty Conditions.* Guns must be dry cleaned and inspected daily. If oil has to be used to remove rust, use it sparingly and remove all traces of oil when clean. Cleaning brushes should be washed in soapy water and dried before use.

22. *Damp, Humid Conditions.* Inspect more frequently and be on the look-out for rust.

23. *Care of the Weapon after Firing Blank.* The gun is to be thoroughly cleaned and oiled immediately after firing blank ammunition. On no account will cleaning be put off to a later stage.

CONCLUSION

24. Questions from and to the squad.

25. Sum up.

LESSON 8—HANDLING

INSTRUCTOR'S NOTES

1. *Aim.* To teach handling in the light role.

2. *Stores.* Guns with slings attached, spare barrels in metal cases, two 50-round belts per gun, drill rounds, wallets and camouflage cream.

3. *Dress.* Battle order. Rifles for all Numbers 2.

4. *Notes.*

a. If insufficient drill rounds are available improvize by using empty cases.

b. Never allow empty cases to be fed into the gun.

c. Choose a suitable piece of ground that will afford various types of cover to bring out the points of the lesson.

d. The method of crawling will be as laid down in Infantry Training Vol 1, Pamphlet No 2, Fieldcraft (All Arms) 1954, Lesson 8, except that the left side of the gun is always to be uppermost.

e. This lesson requires one period.

CONDUCT OF THE LESSON

5. *Preliminaries.*

a. Carry out safety precautions.

b. Order the men to camouflage themselves.

Fig 30—*Firing from low cover.*

Fig 31—*Firing from low cover, bipod folded.*

6. *Approach.* Having been taught and practised in the drills of loading, holding and firing, you are now going to be exercised in the handling of the gun and the use of cover. No 1 and No 2 must always work as a team, with No 2 assisting the gunner whenever possible.

EXAMINATION OF THE GUN

7. Explain that the gun must be examined to ensure that it is in perfect condition before firing. This should also be done frequently in action and during quiet periods.

8. The gunner will carry out the examination as follows:

a. Ensure that the foresight is not damaged or loose.

b. Check that the gas regulator is set correctly.

c. Check that the bipod is in good condition.

d. Examine the rear sight for loose play and to see that it is working freely.

e. Open the top cover, cock the gun and, keeping the trigger pressed, work the recoil mechanism forwards and backwards a few times to ensure that it is working smoothly. Leave the working parts forward. Close the top cover and ejection opening cover.

f. Check that the sling is attached and that it is adjusted to the correct length to suit the gunner.

g. Check the contents of the wallet. It should be carried slung over the shoulder.

9. At the same time, No 2 is to check the second barrel, ensuring that it has been properly prepared for firing.

10. Both No 1 and No 2 are to check their belts and ammunition.

11. Practise Nos 1 and 2. When the examination has been completed, load guns.

THE GUN TEAM

12. Explain the duties of the gun team:

a. *No 1.* Handles and fires the gun as ordered.

b. *No 2.*

i. Assists the gunner as and when required.

ii. Ensures an adequate supply of ammunition to the gun.

iii. Fires his rifle in an emergency.

Note: The Section 2IC may be required to control the fire of the gun on to targets as directed by the Section Commander, and act as link man with the section and watch for any signals from the Section Commander. He then selects positions for the gun and its line of advance on the move.

CARRIAGE OF AMMUNITION

13. A suggested distribution of ammunition for the 7,62 mm MG, based on a section of nine men, is as follows:

a. The gunner and No 2 each carries four belts of 50 rounds.

b. The remainder of the section each carries one belt of 50 rounds to ensure an adequate supply of ammunition for the gun in battle.

14. The distribution and quantity of ammunition will vary with different types of operation and different units.

15. The belts are normally carried in pouches.

Fig 32—*Firing from a fold in the ground, bipod folded.*

Fig 33—*Firing round cover.*

FIRE POSITIONS

16. Explain and demonstrate: Firing the gun from cover is much the same as firing a rifle. Special points to note are:

a. In order to change or join belts quickly the No 2 should always be on the left of the gun. His position should also permit him to observe and direct fire and keep in touch with the Section Commander and the rest of the section.

b. It will sometimes be necessary to fold the bipod legs, in order to make the best use of cover. The gun should then be rested as near as possible to the point where the legs are joined to the gun.

c. Always ensure that the ejection opening cover is clear, to allow the empty cases to be ejected.

d. If the ground is sloping, the sights can be kept upright by rotating the gun in the bipod sleeve.

17. Practice should now be given in mounting the gun, using various types of cover, gunners acting alone.

BATTLE HANDLING—BASIC DRILL

18. Explain and demonstrate:

a. *Action of No 2.* On the command "Take cover" No 2 is to get down behind the nearest cover and move cautiously into a position from which he can observe the front without being seen. He will select a likely gun position and point it out to the gunner. When the gun is in position he will lie down on its left, ready to assist the gunner and to observe and direct fire.

b. *Action of the gunner.*

i. On the command "Take cover" No 1 is to get down behind the nearest cover, watch No 2 and when his fire position is indicated, crawl to it and get into a position of observation, keeping the gun behind cover.

ii. When a range is ordered, the gunner is to set the sights, mount the gun and cock it. He is to fire as ordered.

iii. On the command "Stop", act as taught, but keep the butt in the shoulder.

iv. On the command "Go on", start firing again.

v. "Prepare to move (advance)". If a long bound has to be made the gun is to be "made safe", but for a short advance, ie, to an alternative position, cock the gun and put the safety catch to "Safe". Get the gun behind cover, move to one side and await the order to move.

vi. "Move". Ensure that you do not break cover from the position where you were firing.

vii. No 2 will conform to the actions of the gunner, and ensure that the second barrel has been replaced in its case prior to movement.

19. The men should now be practised in the basic drill, using various types of ground and cover.

CONCLUSION

20. Questions from and to the squad.

21. Sum up.

Fig 34—*Firing from cover—log.*

Fig 35—*Firing from cover—trench.*

LIVE FIRING 2—FURTHER FIRING PRACTICE

INSTRUCTOR'S NOTES

1. *Aim.* To give further firing practice.

2. *Stores.* Guns with slings attached, wallets, cleaning materials, ammunition, binoculars, Fig 11 targets on witness screens.

3. *Notes.*

   a. Guns must have been zeroed and the gas regulator correctly adjusted.

   b. Good coaching is essential. (See Chapter 2, Section 3).

   c. Encourage a relaxed, unhurried atmosphere that will allow firers to concentrate on correct technique and observation.

   d. This lesson is best suited to a gallery range, where good butt marking can add much to the value of the shooting. Efficient signalling and an indication of the order of the arrival of the shots will be of assistance to both the firer and the coach.

CONDUCT OF THE LESSON

4. *Preliminaries.*

   a. Safety precautions.

   b. Prepare guns for firing.

5. *Approach.* Explain the need for good holding and aiming, reminding the squad of the main faults found during the introductory shoot. Emphasize that good observation of strike is necessary.

FIRING

6. Let the men fire 20 rounds, in bursts of three to five rounds, from 100 metres. The target should be a single Fig 11 on a witness screen. Butt markers are to signal after each burst. Firing position should be either from a fire trench or prone in the open.

7. Repeat the practice from 200 metres, using double Fig 11 targets on a witness screen.

CONCLUSION

8. Questions from the squad.

9. Safety precautions.

10. Summarize the progress made.

PRACTICE 3—HANDLING

INSTRUCTOR'S NOTES

1. *Aim.* To give men more practice at handling.

2. *Stores.* Guns with slings attached, spare barrels in metal cases, two 50-round belts per gun, drill rounds, wallets and camouflage cream.

3. *Dress.* Battle order and rifles.

4. *Notes.*

   a. Select ground with all sorts of cover.

   b. This lesson requires one period.

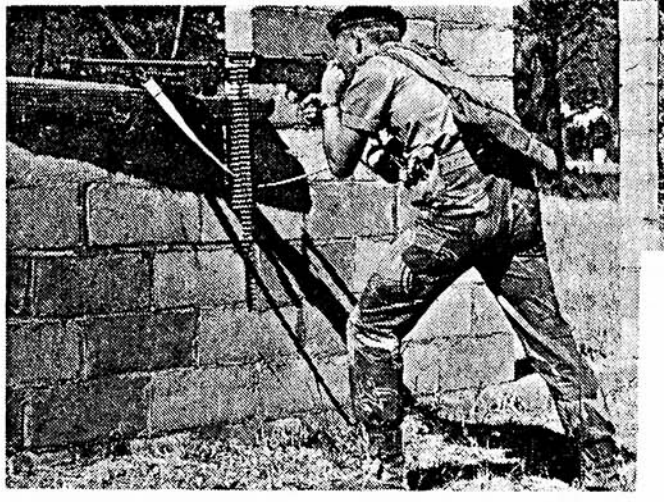


Fig 36—*Firing from cover, standing position.*

Fig 37—*Firing from cover, crouched position.*

CONDUCT OF THE LESSON

5. *Preliminaries.*
   a. Normal safety precautions.
   b. Order the men to camouflage themselves.
6. *Approach.* Explain the aim of the lesson.

PRACTICE

7. Give all men practice in turn; use those who are not practising to crticise the elementary handling, fieldcraft and fire discipline of those who are; some should be sent forward to do this from the enemy's point of view.
8. Give practice in:
   a. Mounting the gun to fire from all types of cover.
   b. Advancing to and occupying fire positions, engaging targets, IA, gas stoppages and other stoppages, replacing causualties and moving to other fire positions.

CONCLUSION

9. Questions from and to the squad.
10. Summarize the lessons learnt and progress made by the men.

LESSON 9—SECTION HANDLING, LIGHT ROLE PART I AND PART II

PART I

INSTRUCTOR'S NOTES

1. *Aim.* To teach the soldier:
   a. How a section is organized and equipped.
   b. What is meant by fire and movement.
2. *Dress and Stores.* Demonstration section in battle order or suitable diagrams to illustrate the organization of a section. Model or blackboard to illustrate fire and movement, a section's weapons and ammunition.
3. *Notes.*
   a. If it is not possible to equip a demonstration section, lay a section's arms, ammunition, magazines and equipment on the ground.
   b. Section handling is the link between individual weapon training and tactics in which soldiers learn to work in groups and section teams.
   c. The section is divided into a rifle group and a machine gun group.
   d. The section is the smallest sub unit in the infantry and so ideally it should work as a whole to give its full fire support to other sub units. However, on occasions it is required to move and fight on its own and it has the organization of a fire group and an assault group to enable it to do so. Likely situations for independent action are:
      i. Fighting in close country or in built-up areas.
      ii. Fighting through an objective.
      iii. Patrol actions.
      iv. Counter Insurgency Operations.

e. The basic loads for the section are as per section organization layout, but many factors make changes necessary—the section's task, its strength, the climate, the terrain and the opposition expected.

f. Part I of this lesson must be followed by practice periods to teach the members of the section their duties in a section action.

CONDUCT OF THE LESSON

4. *Preliminaries.* Safety precautions.

5. *Approach.*

a. The knowledge learned as an individual must now be applied to handling within the section, to weld the section into an efficient team.

b. Explain the aim of the lesson.

SECTION ORGANIZATION

6. The following organization is based on a section of nine men equipped for limited war:

Duty in Section	Weapon	Ammunition	Other equipment
a	b	c	d
Section Commander	Rifle and Bayonet	5 × magazines 150 × rounds ball 10 × rounds tracer 1 × 36 grenade 1 × M970 grenade	Combat equipment Compass prismatic Protractor Hand torch Snakebite outfit Pick axe Map case Wire cutters Protective gloves Whistle Matchette Rifle cleaning kit
Number 1 Rifleman	Rifle and Bayonet	5 × magazines 150 × rounds ball 10 × rounds tracer 1 × 36 grenade 2 × Icarus flares	Combat equipment Light-weight shovel Matchette Rifle cleaning kit
Number 2 Rifleman	Rifle and Bayonet	5 × magazines 250 × rounds ball 10 × rounds tracer 1 × 36 grenade 1 × M970 grenade	Combat equipment Pick axe Matchette Rifle cleaning kit 2 × 50-round MAG belts
Number 3 Rifleman	Rifle and Bayonet	5 × magazines 250 × rounds ball 10 × rounds tracer 1 × 36 grenades 2 × Icarus flares	Combat equipment Light-weight shovel Matchette Rifle cleaning kit

Duty in Section	Weapon	Ammunition	Other equipment
Number 4 Rifleman	Rifle and Bayonet	5× magazines 250× rounds ball 10× rounds tracer 1× 36 grenade 1× M970 grenade	Combat equipment Pick axe Matchette Rifle cleaning kit 2×50-round MAG belts
Number 5 Rifleman	Rifle and Bayonet	5× magazines 250× rounds ball 10× rounds tracer 1× 36 grenade 1× M970 grenade	Combat equipment Light-weight shovel Matchette Rifle cleaning kit
Number 6 Rifleman	Rifle and Bayonet	5× magazines 250× rounds ball 10× rounds tracer 1× 36 grenade 1× M970 grenade	Combat equipment Pick axe Matchette Rifle cleaning kit 2×50-round MAG belts
Gunner	MAG	250× rounds ball 150× rounds tracer	Combat equipment Light-weight shovel Rifle cleaning kit 5×50-round MAG belts
Section 21C	Rifle and Bayonet	5× magazines 250× rounds ball 10× rounds tracer 2× M970 grenades 2× 83 grenades	Combat equipment Compass Recta "J" pack MAG spare parts wallet Matchette Rifle cleaning kit 2×50-round MAG belts

Notes:

a. The distribution of weapons, ammunition and equipment will vary with different types of operation and different units.

b. Totals for the above organization are as follows:

Rifles	:	8
MAG	:	1
Rifle magazines	:	40
MAG 50-round belts	:	13
7,62 mm ball ammunition	:	2 050
7,62 mm tracer ammunition	:	230

CONTROL

7. In defence the Section Commander is normally to control the gun himself. In attack, when fire and movement is used within the section, the Section 2IC is to control the gun in accordance with his initial orders from the Section Commander and, later, by his knowledge and observation of the Section Commander's tactical plan as the latter moves with the rifle group.

FIRE AND MOVEMENT

8. Infantry can seldom get within assaulting distance of the enemy without coming under small arms fire. When that happens they must be given suitable covering fire while they move.

9. The principle of fire and movement is the basis of all tactics. If an attack is mounted from within the section the rifle group and machine gun group are to support each other to move forward: the rifle group ultimately to an assault position and then into the assault itself; the machine gun group to the best fire position to kill the enemy and support the assault. If the attack is mounted by a platoon or more, then that attack is normally to be supported by at least one other sub unit and may well have additional fire support from sustained fire machine guns, mortars, artillery, tanks or ground attack aircraft.

10. The essentials of fire and movement are:

a. No movement over exposed ground without covering fire.

b. The best use of ground and cover (including smoke).

c. The angle of covering fire to be as wide as possible.

d. The covering element must act at once on the order to fire.

e. Speed balanced with control.

AMMUNITION SUPPLY TO THE GUN

11. The Section Commander must give careful consideration to this matter, particularly when the machine gun group is liable to be separated from the rest of the section and it may be necessary for extra belts to be positioned with the machine gun group.

12. In defence extra ammunition and stores are to be dumped and are to be distributed and protected according to the Section Commander's orders.

PART II

INSTRUCTOR'S NOTES

13. *Aim.* To give instructors guidance in the method of conducting section handling exercises so that they can teach the members of a section their duties in a section action.

14. *Dress and Stores.* Battle order, camouflage materials, blank ammunition, blank firing attachments (see Chapter 2, Section 7), guns with slings, wallets, spare barrels in metal cases, belts and rifles.

15. *Notes.*

a. When the section fully understands the principles of section handling and of fire and movement this lesson should be practised several times, on different ground each time. Treat this as a basic lesson the first time, make it simple and have the section in a formation suitable to the ground. As more practice is given, other formations should be used; targets should be selected that are difficult to recognize. If possible have "live" enemy firing blank ammunition. Introduce gun stoppages and casualties in the gun group.

b. The instructor must act as Section Commander and give all orders. He should always be in such a position that he can see what each man is doing.

c. Emphasize the importance of:

i. Firing immediately the order is received.

ii. If the plan is to move under cover of fire, not to move until the covering fire has actually started.

16. *Preparation.* Choose and reconnoitre the ground carefully; remember that you want to practise fieldcraft, the choosing of fire positions, the use of cover and the ammunition supply within the section.

17. *Criticism.* If instructors are going to watch all they should, and check faults effectively, they must be extremely active and get round the section really fast after they have given orders. These are the main points to watch:

a. *Elementary Handling.*

i. Fastening of pouches.

ii. Loading and reloading.

iii. Use of the safety catch.

iv. Action on "Stop" and "Go on".

v. Care of arms and ammunition.

vi. Counting of rounds fired.

vii. Sightsetting.

viii. Making safe.

ix. Ammunition supply.

b. *Fieldcraft.*

i. Use of cover.

ii. Crawling.

iii. Approaching and occupying positions.

iv. Taking up a fire position without moving away after going to ground.

v. Getting into a fire position without first setting sights and spotting the target.

vi. Choice of fire positions.
vii. Mounting the gun.
viii. Recognition (and, later, indication) of targets.
ix. Frequent changing of position to puzzle the enemy.
x. "Take cover, crawl, observe, sights, fire" drill.

CONDUCT OF THE LESSON

18. *Preliminaries.*
   a. Safety precautions.
   b. Make the men prepare for battle and equip themselves as taught; inspect them. Question them briefly on how a section is organized and equipped for battle.

19. *Approach.* It is no good knowing how to handle your weapons unless you can still do it without thinking in the confusion of battle. This lesson teaches you what each man has to do when the section is on the move.

EXERCISING THE SECTION AS A TEAM

20. Act as Section Commander; get the section in a formation suitable to the ground, show them the axis of advance and the "enemy", order "Advance", and then after a pause order "Take cover", and give a fire control order. Continue by ordering "Stop", and "Go on", and giving fresh fire control orders for long enough to let No 2 start his ammunition supply drill.

21. Jump up and check each man (see para 17); get the riflemen round the gun and discuss the fire positions, actions, handling and fieldcraft of the gun team.

22. Give as many men as possible a chance to act as gunner, gun controller and No 2.

FIRE AND MOVEMENT WITHIN THE SECTION

23. Explain; when the section is fired on and gets into fire positions to return the fire, it will usually be difficult to move again without covering fire. It may be necessary for the riflemen or the gunner to move short distances to get into more suitable fire positions. When either group is moving the other is to give covering fire.

24. The Section Commander controls the movement of the section and moves with and commands the rifle group.

25. The Section 2IC (gun controller) must see that the gun position and ammunition supply are such that the gunner can produce accurate supporting fire which will keep the enemy's heads down while the rifle group moves.

26. The groups move by bounds, as the men will learn when they are taught section tactics. This lesson deals only with the basic principles of fire and movement.

PRACTICE

27. Act as Section Commander, get the section in formation suitable to the ground and show them the axis of advance and the "enemy". Order "Advance", and after a pause, "Take cover", and give a fire order.

28. When the section is in a fire position shooting at the enemy, act as Section Commander and order the gun group to move to a position a few metres (rarely more than 20) to a flank to cover the rifle group, who may need to improve their position. Order the rifle group to fire to cover the

move of the gun group to its "covering fire" position. Watch the gun group and when it has moved and is firing, order the rifle group to move. When the rifle group has moved forward a few metres stop the action and close on the gun position.

29. Criticize and discuss the action.

30. Give as many men as possible a chance to act as gunner. gun controller and No 2.

CONCLUSION

31. Questions from and to the squad.

32. Sum up.

LIVE FIRING 3—FURTHER FIRING PRACTICE AT LONGER RANGES

INSTRUCTOR'S NOTES

1. *Aim.* To give further firing practice at longer ranges.

2. *Stores.* Guns with slings attached, wallets, cleaning materials, ammunition, binoculars, targets on witness screens as required.

3. *Notes.*

   a. Guns must have been zeroed and the gas regulator correctly adjusted.

   b. Firers are to be coached, and good coaching is essential. (See Chapter 2, Section 3).

   c. Undue haste is not desirable during range work. Allow firers to concentrate on correct technique and observation.

   d. This practice should be fired on a gallery range. Prompt and accurate signalling from the butt markers will be of value to coaches and firers.

CONDUCT OF THE LESSON

4. *Preliminaries.*

   a. Safety precautions.

   b. Prepare guns for firing.

5. *Approach.* Remind the squad of the common faults to be avoided. Emphasize the need for good observation and, at these longer ranges, for accurate wind estimation.

FIRING

6. Let the men fire 20 rounds, in bursts of three to five rounds, from 200 metres. The target is to be a double Fig 11 on a witness screen. Butt markers are to signal the position of the MPI after each burst. Firing position should be either from a fire trench or prone in the open.

7. Repeat the practice from 300 metres.

CONCLUSION

8. Questions from the squad.

9. Normal safety precautions.

10. Sum up.

PRACTICE 4—SECTION HANDLING

INSTRUCTOR'S NOTES

1. *Aim.* To practise the soldier in the duties of a section in action.

2. *Dress and Stores.* Battle order and rifles; camouflage materials, blank ammunition if available, blank firing attachments, guns and slings, wallets, drill belts, spare barrels in metal cases.

3. *Notes.*
   a. Choose and reconnoitre ground carefully, bearing in mind that you wish to practise fieldcraft and the choosing of fire positions.
   b. This lesson requires two periods.

CONDUCT OF THE LESSON

4. *Preliminaries.*
   a. Normal safety precautions.
   b. Make the men prepare themselves for battle and equip themselves as taught. Criticize their preparation.

5. *Approach.* Explain the aim of the lesson.

PRACTICE

6. Act as section commander and practise the squad as a team, but giving as many men as possible a chance to act as gunner and No 2.

7. Constantly watch and criticize everyone's movement, fieldcraft, selection of fire positions and elementary handling. Let the men discuss the fire positions, actions, fieldcraft and handling of the gun team. Introduce practice in the basic principles of fire and movement.

CONCLUSION

8. Questions from and to the squad.

9. Sum up. Stress that in battle section commanders have no time to criticize and correct, but must rely on each man pulling his weight, therefore everyone's handling must be instinctive.

LESSON 10—CLOSE QUARTER BATTLE AND ANTI-AIRCRAFT HANDLING

INSTRUCTOR'S NOTES

1. *Aim.* To teach and practise the soldier to fire the gun at close quarters and as an anti-aircraft weapon.

2. *Stores.* Guns with slings attached, spare barrels in metal cases, drill rounds, belts, wallets and targets.

3. *Notes.*
   a. When this lesson has been taught, live practices should be fired. Repeat the firing as often as ammunition permits. For details of the 50-round feed box see Chapter 2, Section 10.
   b. This lesson requires one period.

CONDUCT OF THE LESSON

4. *Preliminaries.* Safety precautions.

Fig 38—*The CQB position.*

PART I—CLOSE QUARTER BATTLE

5. *Approach.*
   a. In the assault, in street fighting, in bush and close country the gun can be used as a close quarter weapon.
   b. The gunner must remember that before the belt is fully expended he should get to cover and load a fresh belt. It is the duty of the No 2 to see that the gun does not run out of ammunition.
6. *Position and Firing.* Explain and demonstrate:
   a. Loosen the sling, load, cock the gun and put the safety catch to "Safe", lift up the gun and loop the sling over either shoulder, fold and lock the bipod legs underneath the gun. Loop the belt over the left arm. When moving keep the gun cocked and the safety catch at "Fire", but for safety, eg, when crossing obstacles put the safety catch to "Safe" and return it to "Fire" when clear.
   b. When deciding over which shoulder to put the sling, remember that if the sling is over the left shoulder it takes longer to bring the gun into its bipod role. The firer must consider the closeness of the country, the size of the wood, etc, through which it is expected to use the gun in its close quarter battle role.
   c. During the advance hold the gun with the right hand on the pistol grip, forefinger clear of the trigger. The left hand should hold the folded bipod legs in such a manner that the fingers are clear of the barrel and gas cylinder.
   d. When a target appears advance the left leg in the direction of the target, body leaning forward in the "on guard" position, press the gun into the right side and hold firmly.
   e. Fire in bursts by sense of direction and correct by observation.
   f. Although it is possible with training to fire whilst advancing far better results are obtained by pausing momentarily to fire each burst. Firing from the waist requires good holding and a grim determination to hit the target rapidly and accurately.
   g. Should the gun stop, go to cover quickly. The IA can be carried out with the gun resting on the left thigh, kneeling on the right knee. Keep the muzzle towards the enemy. Other stoppages may require the gun to be put on the ground.
7. *Practice.*
   a. Each man should be practised in the firing position and moving to cover to reload. Practice must also be given in stoppage drill.
   b. Subsequent practice, which should take place immediately afterwards, is to be by live firing at targets at short ranges up to 25 metres.
8. Questions from and to the squad.
9. Sum up on Part I.

PART II—ANTI-AIRCRAFT HANDLING

10. *Notes.* Instructors must be fully conversant with Chapter 2, Section 4.
11. *Approach.*
   a. Orders will always be given as and when to open fire and at what target.
   b. The gun needs no special preparation for anti-aircraft firing, except to adjust the gas regulator to give maximum gas.

Fig 39—*The AA position, one man.*

c. Belts are to be filled one tracer to every four ball, for anti-aircraft purposes.

d. The gun can be fired in this role by the gunner acting alone, but it is difficult for the gunner to see the tracer stream by himself. Therefore either the section commander or 2IC should position himself behind the gunner to watch for aircraft and to correct fire.

e. No 2 will assist in loading and the supply of ammunition by linking on new belts as taught.

12. *Firing Position*. Explain and demonstrate:

a. *Kneeling*. Loosen the sling, place it over the right shoulder, hold the gun with the bipod legs folded, kneel on the right knee, keep it well out to the right and rest the butt on the thigh.

b. *Standing*. This position is as for close quarter battle. The head will be kept well back.

13. *Firing*. Explain and demonstrate:

a. On the alert or stand to, pick up the gun, cock it, hold it as taught and check that the safety catch is at "Fire".

b. To fire, concentrate on the target. If the aircraft is coming straight at you point the gun at its nose. If it is slow and crossing point the gun well in front of its line of direction, so that it flies into the bullets. You must swing with the aircraft.

c. Turn right about, when possible since No 2 may be on the gunner's left.

d. If possible fire a belt in one controlled burst, watch the tracer stream and correct accordingly or take the corrections of section commander or 2IC.

e. If the stream passes behind a crossing aircraft make a bold swing forward.

f. If a stoppage occurs, rest the gun across the left knee and carry out the IA.

14. *Practice*.

a. The men should be practised in firing and linking up belts in pairs. Words of command should be:

i. "Aircraft front (left or right)".

ii. "Stop", or

iii. "Make safe".

b. Practise the men in firing from trenches and from stationary and moving vehicles. Explain:

i. In a trench lean against the back of it for support.

ii. Different positions suit different vehicles. No 2 must support the gunner if necessary.

15. *Conclusion*.

a. Questions from and to the squad.

b. Sum up.

LESSON 11—FN TRIPOD 1
INSTRUCTOR'S NOTES

1. *Aim*. To teach how to:

a. Mount and dismount the tripod.

b. Mount and dismount the gun on the tripod.

Fig 40—*The AA position, two-man team.*

BLK.

2. *Stores.* Guns with slings attached, tripods.

3. *Notes.*

   a. Name the parts as they are handled but do not expect the squad to memorize the names at this stage.

   b. This lesson requires one period.

CONDUCT OF THE LESSON

4. *Preliminaries.* Safety precautions.

5. *Approach.* The tripod is an extremely useful means on which to mount the gun for firing. Used in this way, firing is very stable and the effective range is considerably increased. It is normally used in defence to fire along a fixed line or an approach, or to fire between fixed limits in daytime or during the hours of darkness, mist or smoke. The tripod weighs 10,5 kg (23 lb).

DESCRIPTION

6. Show the squad the tripod and point out that it consists of a tubular frame to which three legs are attached. Each leg is adjustable and is held in position by means of a clamping handle. The frame supports the following:

   a. *The Traversing Platform.* This consists of a triangular frame which is hinged at its front end and has a traversing arc in the rear. The arc is graduated from 0 to 600 mils either side of zero. This gives a complete traverse from left to right of 1 200 mils (approximately 67°). There are two traversing stops with clamping nuts which are used to:

      i. Clamp the cradle for firing along a fixed line.

      ii. Allow the cradle to sweep when firing between fixed limits.

   b. *The Elevating Gear.* On the right of the tripod frame is the elevating wheel and its clamping handle. When the clamping handle is unclamped and the elevating wheel is rotated to the rear, the traversing arc is raised. To lower the arc, rotate the wheel forwards. This upward and downward movement of the traversing arc is achieved by two gears which are engaged by a toothed gear wheel, forming part of the elevation wheel. The right hand gear is graduated from 0 to 400 mils.

   c. *The Cradle.* This is the part that receives the gun and incorporates the traversing gear. It is mounted on top of the traversing platform by means of a pivot joint in front, and a slide in rear which moves along the traversing arc. The cradle receives the gun at the front and rear mountings and holds it in position by means of a mounting pin at the rear mounting. When the gun is fired the cradle moves along its guides to the rear and the recoil is absorbed by the two springs. The traversing clamp, underneath the slide, is used to lock the cradle to the traversing arc. The left edge of the slide is the indicator, used in conjunction with the mils marked on the traversing arc. On the right of the slide is the fine adjustment mechanism which allows for fine lateral adjustment when sighting the gun.

   d. *The Traversing Gear.* Adjustment of traverse can be made in two ways:

      i. With the traversing clamp unlocked, the cradle may be moved laterally along the traversing arc. The amount of traverse may be controlled by making use of the traversing stops.

ii. With the fine adjusting worm wheel, it is possible to adjust for traverse up to a total of 30 mils. Each click of the worm wheel gives one mil. Before operating the fine adjusting worm wheel, the traversing clamp must be unlocked and the worm wheel locking nut must be clamped up.

7. Question the squad.

TO MOUNT THE TRIPOD

8. It is normally the duty of No 2 to mount and dismount the tripod. Explain and demonstrate:

a. Kneel behind the rear of the tripod, raise the front end so that it balances on the shoe of the front leg.

b. Unclamp the front leg and swing it forwards and upwards until the indicator is opposite the figure 1, then clamp up.

c. Rest the tripod on the front leg, cant the tripod over to the left and unclamp the right leg. Swing the leg outwards to the rear until the indicator on the leg is opposite "0" on the frame, and clamp up.

d. Cant the tripod over to the right, unclamp the left leg and swing the leg outwards to the rear until the indicator is opposite "0" on the frame. Clamp up.

e. Unclamp the elevating wheel and rotate it until the traversing platform is level. Clamp up.

f. Unclamp both traversing stops and slide them outwards until they are against their stops. Clamp them up.

g. Unclamp the fine adjusting worm wheel locking nut. Centralize the cradle on its traversing arc if it is not already there. Clamp up the traversing clamp. Remove the rear mounting pin.

TO DISMOUNT THE TRIPOD

9. Explain and demonstrate:

a. Replace the rear mounting pin.

b. Unclamp:

i. The fine adjusting worm wheel locking nut.

ii. The traversing clamp.

c. Centralize the cradle and clamp up the traversing clamp.

d. Unclamp both traversing stops, slide them up against the cradle and clamp them up.

e. Lower the elevating gear and clamp up.

f. Unclamp the left leg, fold and clamp up.

g. Unclamp the right leg, fold and clamp up.

h. Raise the tripod to a vertical position, unclamp the front leg, fold and clamp up.

j. Lower the tripod and stand up behind it.

10. Practise the squad. Use words of command "mount tripod" and "dismount tripod". Leave tripods mounted.

TO MOUNT THE GUN ON THE TRIPOD

11. The gunner prepares the gun and mounts it on the tripod. Explain and demonstrate:

a. Fold the bipod legs.

b. Pick up the gun with the right hand gripping the carrying handle and the left hand holding the small of the butt. Carry the gun to the tripod.

c. Tilt the butt upwards and insert the front mounting of the gun under the shoulders of the front mounting of the cradle.

d. Lower the butt until the rear mounting of the gun is in alignment with the rear mounting of the cradle. Insert the mounting pin and rotate it forward until it is locked.

e. Lower the carrying handle to the right.

TO DISMOUNT THE GUN FROM THE TRIPOD

12. Explain and demonstrate:

a. No 2 removes the rear mounting pin.

b. The gunner removes the gun from the cradle as follows:

i. Grip the carrying handle with the right hand and raise it to the carry position.

ii. Raise the butt with the left hand.

iii. Slide the gun forward and remove it from the cradle.

13. Practise the squad at mounting and dismounting the gun.

14. Practise the squad in pairs (gunner and No 2) at mounting and dismounting the tripod and gun. Use the words of command "mount gun" and "dismount gun".

CONCLUSION

15. Questions from and to the squad.

16. Sum up.

LESSON 12—FN TRIPOD 2

INSTRUCTOR'S NOTES

1. *Aim.* To teach how to lay the gun on the tripod for firing on a fixed line or between fixed limits.

2. *Stores.* Guns with slings attached, tripods, drill rounds, belts, belt boxes, wallets, spare barrels in metal cases, sandbags.

3. *Notes.*

a. This lesson deals with the actions to be carried out by the gunner and No 2 when mounting and laying the gun for firing on a fixed line or between fixed limits.

b. This lesson requires one period, but further practice may be necessary to make men proficient.

CONDUCT OF THE LESSON

4. *Preliminaries.*

a. Safety precautions.

b. Revise mounting and dismounting the tripod. Leave guns mounted on tripods.

5. *Approach.*

a. The gun may be mounted on the tripod to fire on a fixed line, or to fire between fixed limits of an arc. Preparations are carried out during daylight, ie, the gun is mounted and sighted. This

ensures that effective fire can be brought down on an area of ground in darkness, mist or smoke.

b. A fixed line is a predetermined line along which the gun fires when a signal is given. Guns are normally employed in this manner in defence, to cover a likely enemy approach or a minefield.

c. A fixed limit is a predetermined arc of fire, limited between two specific points between which the enemy are likely to approach, such as a gap in a minefield.

SETTING UP THE GUN FOR FIXED LINES

6. Whenever possible the gun should be mounted on the tripod behind cover before it is placed in its firing position. Once the gun has been mounted on the tripod, the actions of the gunner and No 2 are as follows:

a. The gunner grips the front leg with the right hand and the right leg with the left hand.

b. No 2 grips the front leg with the left hand and the left leg with the right hand.

c. They move the gun mounted on the tripod to its firing position ensuring that they keep under cover and do not expose themselves.

d. The front leg is pointed towards the target area and, if necessary, the legs are adjusted to suit the ground and the cover.

e. The legs are stamped in until the tripod is firm and the traversing arc is level. If sandbags are available they are placed on the legs to assist in keeping the tripod firm.

7. The gunner now lays the gun as follows:

a. Unclamp the traversing slide and move the slide until the barrel is pointing along the fixed line.

b. Clamp up the fine adjusting worm wheel locking nut.

c. Set the sights at the range to the target.

d. Unclamp the elevating wheel clamp handle and, using the elevating wheel and fine adjusting worm wheel, lay the gun. All clamps are then locked.

e. Take note of the readings on the traversing arc and the elevating gea

f. Both traversing stops are closed against the slide and clamped up.

Note: While the gun is being laid, the gunner or No 2 must not lean on the tripod or gun.

8. The gun is now loaded if the task is immediate. If not, the gun can be removed and used in the bipod role and replaced on the tripod when required.

SETTING UP THE GUN FOR FIRING BETWEEN FIXED LIMITS

9. The same procedure is followed up to the point where the gunner lays the gun. In this case the left and right limits of the target must be known. The gunner carries out the following actions:

a. Lay on the left limit of the target and clamp the right traversing stop against the slide.

b. Lay on the right limit of the target and clamp the left traversing stop against the slide.

c. Note the readings on the traversing arc in both cases, as well as the reading on the elevating gear.

10. If the task is immediate the gun will be loaded. If it is required for another role it can be removed and replaced at a later stage.

SAFETY

11. Great care must be taken when laying the gun for fixed lines or fixed limits not to endanger the lives of friendly forces. The line of fire must not be less than 100 mils to the nearest edge of friendly forces.

FIRING

12. In order not to influence the movement of the gun, the gunner should use only the forefinger on the trigger and the thumb behind the pistol grip, when firing. There is no need to have the butt in the shoulder. The number of rounds and length of bursts will depend on the orders given to the gun team. As a guide, it must be remembered that:

a. 20-round bursts will ensure a close pattern of shots in the beaten zone.

b. If shorter bursts are employed, they should not be less than 10 rounds to be effective.

13. No 2 will assist the gunner as taught.

CONCLUSION

14. Questions from and to the squad.

15. Sum up.

CHAPTER 2—EXTRA INFORMATION FOR INSTRUCTORS

SECTION 1—ZEROING

GENERAL

1. The gun should be zeroed from the bipod by the gunner or by a good shot. Any adjustments that may be necessary are to be carried out by a qualified NCO.

2. When zeroing is completed, each member of the section is to fire the gun and make a careful note of any alteration he requires to the sight-setting or point of aim.

ELEVATION

3. Errors in elevation are corrected by turning the foresight up or down. If it is turned up the MPI of the group will be moved down, and vice versa.

4. One half turn of the foresight, ie, 180 degrees, will move the MPI vertically about one inch at 25 metres and about four inches at 100 metres.

5. There are two sizes of foresight—small and large. There are five complete turns of each foresight.

6. To turn the foresight lift up the hinged securing clip from the rear of the foresight block and, using the adjusting tool, screw the foresight either up or down sufficient to correct the zero. Push the securing clip firmly down to lock the foresight.

DIRECTION

7. Errors in direction are corrected by moving the foresight laterally. If it is moved to the left the MPI of the group will be moved to the right, and vice versa.

8. To move the foresight to the left insert the Allen key of the adjusting tool into the Allen screw and loosen the screw the required amount, then

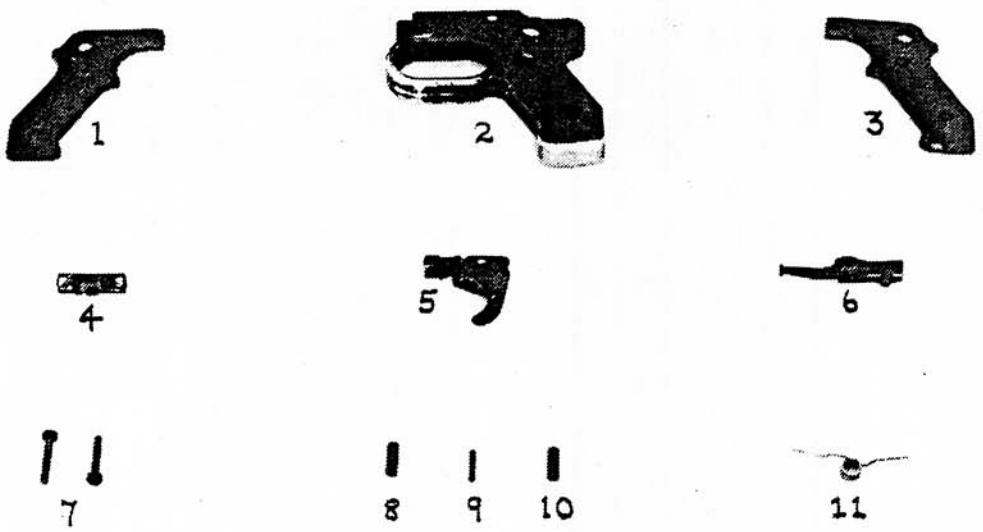


Fig 41—*Trigger group stripped.*

1. Side plate.
2. Housing.
3. Side plate.
4. Safety catch.
5. Trigger.
6. Sear.
7. Retaining screws.
8. Sear spring pin.
9. Trigger axis pin.
10. Sear axis pin.
11. Sear spring.

tighten the screw on the right, thus moving the foresight along its dovetail to the left.

9. One half turn of the adjusting screws will move the MPI ¾ inch at 25 metres and three inches at 100 metres.

10. When corrections have been made always check that the screws are tight and that the securing clip is firmly down.

METHOD OF TESTING

11. Prepare the gun for firing in the normal way. Check that:

a. The gas regulator is adjusted correctly.

b. The foresight is in good condition and that the hinge clip and Allen screws are tight.

c. Fire two to three rounds in a burst to dry the barrel.

d. Fire one five-round group and by measurement find the MPI and alter the sights accordingly.

e. Zero the gun until the MPI is ¾ inch above the point of aim at 25 metres or three inches at 100 metres. The permissible error is half an inch at 25 metres and two inches at 100 metres.

f. The gunner is to fire a check group to confirm the zero.

12. The gunner, and each member of the section, are now to fire a five-round group. From this each man is to calculate the variation of the MPI of his group in relation to the zero group, to enable him to make any alteration to the backsight or point of aim at the longer ranges.

SECTION 2—ADDITIONAL STRIPPING AND ASSEMBLY

1. To clean more thoroughly it may be necessary to strip parts of the gun not taught previously. When the parts are put back again always test them to see that they work properly.

2. The stripping of the trigger group may be carried out only by qualified NCOs.

3. The feed mechanism is NOT to be stripped by personnel other than qualified armourers.

TRIGGER GROUP

4. Ensure that the working parts are forward and remove the trigger group as taught. To strip:

a. Remove the screws holding the side plates and ease off the plates carefully.

b. Set the safety catch to the "F" position.

c. Pivot the safety catch clockwise until the lug on it is in line with the notch cut in the left side of the trigger guard. In this position the flat surfaces are downwards. Remove the safety catch.

d. Holding down the sear, push out the sear pin and lift the sear. Push out the sear spring pin and remove the sear spring.

e. Push out the trigger pin and remove the sear and trigger. Unhook the sear hook from the trigger.

5. To assemble:

a. Put the sear hook into the trigger with the nose of the sear uppermost. Insert into the frame and line up the trigger hole—insert the trigger pin. Lift the sear.

b. Put back the sear and trigger spring with the coil to the rear and secure with the pin.

c. Pull down the sear and insert the pin.

d. Replace the safety catch from the left, ensuring that the end marked "S" goes in first, turn anticlockwise until the flats are to the rear.

e. Press the trigger and release it, then push back the sear trip to release the sear.

f. Replace the side plates and screws.

g. Whenever the trigger group is removed, always ensure that the safety catch is at "Fire" before assembling back in the gun.

FLASH HIDER

6. The flash hider is removed from the muzzle by unscrewing it with the spanner.

7. To replace the flash hider, screw it on as far as possible by hand, then tighten with the spanner.

SECTION 3—COACHING

ZEROING

1. The method of zeroing has been covered in Section 1. Instructors must realize that although the gunner (the best shot) is to zero the weapon, each man in the section is to fire the gun. From the position of his group in relation to the point of aim he can learn what errors in either direction, or elevation, or a combination of both, he can expect at longer ranges.

SIGHTING

2. Bursts of three to five rounds must be insisted upon at all sighting shoots. The standard to be aimed at is a three-inch group or less at 25 metres. Errors in holding must be carefully criticized during this stage of the soldier's training and every opportunity must be taken to correct these errors.

CONSIDERATIONS ON HOLDING

3. The problems of holding the gun are quite different from that of the rifle. The rifleman must hold his rifle perfectly steady while perfecting his aim and then operate the trigger. This requires a firm hold.

4. With the gun, the gunner has the bipod to assist him to hold the gun steady, and because of this factor, plus the extra weight of the gun, the gunner tends to hold less firmly. This is quite wrong. The instructor must insist at all times, that the gun is held firmly.

5. The automatic action of the gun sets up vibrations which must be controlled—not merely at the start of the burst, but during the whole of the bursts and after the trigger has been released. The criterion as to whether this is accomplished successfully is whether the "sight picture" is the same at the end of the burst as at the beginning. The sights will dance about during the burst, but if they bear the same relationship on the target at the end as at the start, then the holding was good. If the sights are off the target at the end of the burst, the gun has taken over control and the holding was poor.

6. Examination of the target will indicate to a good coach the errors in holding.

7. It may be found that improved results can be obtained by some firers by using an alternative hold, as follows:

a. Take the left hand off the gun and place it underneath the small of the butt, gripping it with the palm uppermost.

b. The position of the left elbow may require slight adjustment, so that the butt can be pulled back into the shoulder.

c. Open the legs, and try to lay the heels flat on the ground, but keep the body straight behind the gun.

8. The above hold should be tried if it is found that, in spite of coaching, a man cannot successfully use the hold taught in Lesson 4.

WHAT TO LOOK FOR AT THE FIRING POINT

9. Some errors can be detected on the firing point. These are:

a. Pulling the gun into the shoulder instead of moving the body up to the gun.

b. Body oblique to the gun.

c. Closing the right eye as the trigger is operated.

10. The above points should be easy to detect and a. and b. can be corrected and put right before the man fires. The points not easily detected are relaxing or tightening the grip during the firing of bursts.

LIMBERING UP

11. This is most important; the firer should be allowed to aim at the target and, concentrating on the foresight, rock the gun straight backwards and forwards, imitating firing. If the foresight does not move straight up and down the position of the body is at fault and must be moved slightly either way to correct. The sight picture seen during the limbering up stage will give a good indication of what is likely to happen once firing begins.

12. Having carried out this drill the firer should be instructed to keep the elbows in the same position throughout the shoot.

DECLARATION OF THE POINT OF AIM

13. It is doubtful whether this is of the same value to the coach as it was with the rifle. By the time the firer has reached this stage of training on the gun he will have fired his rifle course. He should therefore be able to hold a correct aim for a single shot.

14. It would be quite wrong to insist on a declaration of the first shot in each burst, since this would prevent him from restraining his breathing during the firing of the burst.

15. If he declares his point of aim at the end of the burst, and poor holding has resulted in the shots running to the right or left and off the target, there is a danger that the coach will order the firer to adjust his point of aim to counteract the error, with the result that the first two or three rounds of the next burst may be off the target.

16. The aim of the coach must be to correct loose holding by either altering the firer's position or adjusting the hold.

COACHING AT 25 METRES

17. The 25 metres range is perhaps the ideal range on which to coach the gunner during early stages of training. The order of arrival of each shot of the burst can be clearly seen; furthermore, the screen can be brought back to the firing point and criticism can be done whilst the second detail fires.

18. In the introductory shoot four bursts should be fired at four different aiming marks. The coach first examines the firer's position and when satisfied that all is well, he should then watch the target.

19. Each burst should be regarded as a separate shoot and any errors spotted at the target should be corrected between bursts.

20. General faults are:

a. Group running to left—the right shoulder has not been brought up to the gun, and the butt tends to move rearwards and to the right.

b. This is also the case where the body is too far to the left of the gun—the right shoulder sloping away from the butt.

c. When the first shot is near the point of aim and subsequent shots form a group at some other point, it is fair to assume that the grip has been tightened during the burst.

d. A scattered group around the point of aim indicates loose holding.

21. The firer must achieve a three-inch group average firing three- to five-round bursts before progressing to the 100 metres range.

COACHING AT LONGER RANGES

22. At longer ranges the coach must watch the area round the target and spot the strike. He should advise the firer on the necessary wind allowance and on any corrections for elevation.

LENGTH OF BURSTS

23. It would be wise during the introductory shoot to let the firer load with a five-round belt. In this way he quickly learns for how long to press the trigger. He must be taught to continue his hold after the last round of the burst has been fired, and to note the relationship between his foresight and the point of aim. The firer must be taught how to correct his hold and position, to correct his faults.

THE COACH

24. It is an advantage to be an expert gunner but not a necessity. The aims of the coach must be:

a. To spot faults and to correct them intelligently.

b. To produce results.

c. To prepare the firer to fire his annual course.

d. To impart sufficient knowledge to the firer so that he can fire accurately without assistance.

e. And finally to encourage and promote within the firer the confidence and pride in his ability to master the weapon.

SECTION 4—THE PRINCIPLES OF SMALL ARMS AA FIRE

1. This section amplifies Lesson 10, Part II. Before you read it, read through Lesson 10, Part II, again.

POLICY

2. The decision on general policy as to whether or not to engage enemy aircraft with small arms fire is the responsibility of the theatre commander. Troops well dug in and well concealed are difficult to see from the air and guns may give away the position if they open fire. If the orders are to open fire the following policy will apply:

a. Although a modern aircraft will rarely be brought down by small arms fire, it may be damaged so that it crashes on its return to base, or is grounded for several days for repair.

b. Accurate small arms fire can upset a pilot's aim and acts as a deterrent to low-flying attacks. Fire must be strictly controlled, however, to safeguard friendly aircraft and to prevent men from exposing themselves and thereby disclosing their positions.

c. In order to ensure that the necessary standard of fire discipline is maintained, units are therefore to form special AA teams from certain of their gun numbers. These teams only are to engage hostile aircraft.

d. Fire is only to be opened by unit AA teams in the following circumstances:

i. If the aircraft is seen to attack a ground target.

ii. If the aircraft dives on to an objective; this does not apply to light aircraft or helicopters, which are not to be engaged by small arms fire.

iii. If the aircraft is recognized by the firer as an enemy.

e. Special care must be taken not to fire at friendly light aircraft and helicopters, which are liable to fly anywhere in a battle area. Aircraft must therefore be identified before fire is opened, since friendly light aircraft, for example, may dive suddenly in order to take evasive action and be thereby mistaken for an enemy aircraft diving on to an objective.

3. When light aircraft are not recognized but are suspect of being enemy, AA gunners and air sentries must report the presence of such aircraft to their immediate superior. Units are to report to higher formations, using a suitably modified version of the BOMBREP code.

4. On the move in MT:

a. As many vehicles as possible should have one or more AA guns ready for action. Air sentries must be alert, and guns along the column trained in different directions so that some of them can meet an attack from any direction. Canopies and superstructures must be so adjusted that the guns are instantly free to shoot.

b. If aircraft attack the column guns must open fire at once.

c. A column must not halt except on the commander's orders; if it halts for any other reason column and vehicle commanders must do all they can to get it moving again.

d. If a halt is ordered, or if for any reason the column halts and seems unlikely to get going again quickly, everyone must debus at once and disperse clear of the road, and AA gunners should engage suitable enemy aircraft.

5. When concealment is not so important, for instance in camps or bivouacs whose locations the enemy knows, AA gunners should fire at suitable enemy aircraft unless specially ordered not to.

6. Collectively controlled rifle fire can be an effective deterrent against low-flying aircraft.

7. Troops dispersed and well concealed are very difficult to spot from the air, and dispersal and concealment are the best defence against low-flying attack.

TRAINING

8. In infantry units everyone must be taught AA fire discipline; in other units two men for each gun and adequate reserves must be trained.

9. Aircraft are likely to attack fast and suddenly; you may not even

hear them until they are on you, and there will be no time for anyone to give orders. This means that:

a. Men must be trained:
   i. Not to be demoralized by the speed, noise and hitting power of modern aircraft, nor to expect to hear them before an attack actually starts.
   ii. To act as AA sentries as well as gunners and to fire without orders.
   iii. To a high standard of handling and fire discipline so that they only open fire when they should and do not endanger friendly troops.
   iv. Not to expect to see results from their fire, but to remember that bullets may hit vital parts and bring the aircraft down out of sight, or ground them for repairs.
   v. To watch and listen for aircraft and to judge what lines of approach they may use to gain surprise; for instance, out of the sun or cloud, or over low hills or woods.
   vi. To work in pairs. Give them constant practice at handling, particularly against jet fighters, when you can.
b. Choose the quickest witted and steadiest men as AA gunners.
c. Units must have, and constantly practise, a sound drill for:
   i. Debussing, dispersing and embussing.
   ii. Co-ordinating AA gunfire, to save confusion, or endangering friendly troops.
d. Introduce AA defence into all training, so that in war it is instinctive, and always discuss it after any exercise.

TRAINING SYLLABUS

10. This should include:
   a. The general principles of offensive action by AA gunners.
   b. Aircraft recognition.
   c. Lesson 10, Part II, and progressive practice in the open, in slit trenches and from stationary and moving vehicles.
   d. Live firing, first against a stop butt, to get men used to firing a whole belt in one burst (ball ammunition may be used for this), then as laid down in Chapter 12 of Infantry Training Volume III, Pamphlet No 32, Range Construction and Regulations 1958, WO Code No 9486. Firers should prepare their own guns and belts and work in pairs. If local regulations allow they should fire:
      i. Standing and kneeling in the open.
      ii. From weapon slits, and
      iii. From stationary and moving vehicles.
      Note: In addition to the precautions laid down in pamphlet No 32 mentioned above, an officer, warrant officer or senior NCO must stand immediately behind each firer. His duty is to stop firing if it looks like going outside the safety limits or endangering flying aircraft. The quickest way is to twist the belt at point of entry into the feed tray.
   e. AA fire discipline training at every possible chance, especially on collective training.
11. Training must be continuous and progressive.

SECTION 5—TRAINING TESTS

1. Soldiers under training are to be tested by means of these training tests to find out if they have reached the required standard before going on to more advanced training. (See Appendix A to this section.)

2. The various tests should be inserted in the appropriate place in the training programme.

3. Before testing explain to the soldiers the test conditions. Let them ask questions. Once the test begins do not help them any more. Always tell them the results of the tests and where they went wrong.

4. Grade men as follows:

a. Skilled	:	80 to 90 marks.
b. Above average	:	70 to 79 marks.
c. Average	:	50 to 69 marks.
d. Below average	:	40 to 49 marks.
e. Failed	:	Less than 40 marks.

SCHEDULE OF TRAINING TESTS

Test No.	Subject	Stores	Conditions	Marking
a	b	c	d	e
1	*Loading* The gunner tested for time and actions	Gun, drill rounds, belts, stop watch	The gunner is to stand behind the gun. Safety catch at "Fire". Belt on the ground on the left of the gun. On the command "Load" get down and load. Time is taken from "Load" until the gunner has both hands in their proper position on the gun	6 seconds: 10 8 seconds: 8 10 seconds: 6 12 seconds: 4 Over 12 seconds: Nil Take off one mark for each mistake. Take off five marks if the mistake affects safety HPS: 10
2	*Make Safe* Test of Gunner	As for Test No. 1	The gunner behind the gun; gun loaded. Give a range. Order "Prepare to move". Time taken from order "Prepare to move", until the gunner has both hands in position on the gun	10 seconds: 10 12 seconds: 8 14 seconds: 6 16 seconds: 4 Over 16 seconds: Nil Take off one mark for each mistake. Take off five marks if the mistake affects safety HPS: 10
3	*Unload* Test of Gunner	As for Test No. 1	Gunner behind the gun; gun loaded and firing. Order "Stop" and when actions have been carried out correctly give the command "Unload". Time taken from "Unload" until the gunner is standing up behind the gun	6 seconds: 10 8 seconds: 8 10 seconds: 6 12 seconds: 4 Over 12 seconds: Nil Take off one mark for each mistake. Take off five marks if the mistake affects safety HPS: 10

a	b	c	d	e
4	*IA and Gas Stoppage.* Test of Gunner	As for Test No. 1	Gunner behind the gun; gun loaded and firing. Order "Gun Stops". When IA has been done order "Gun fires a few more rounds and stops again". Time taken from "again" until the gunner has aimed and fired the gun. Although IA is not in the time limit, it will count in the test as regards mistakes made	6 seconds: 10 7 seconds: 8 8 seconds: 6 9 seconds: 4 Over 9 seconds: Nil Take off one mark for each mistake. Take off five marks if the mistake affects safety HPS: 20 (Gas stoppage: 10) (IA: 10)
5	*Stripping and Assembling* Test of Gunner	As for Test No. 1 but no watch	The gunner strips the gun as for daily cleaning and puts it together again as taught in Lesson 1	Give 10 marks; take off one for each mistake. If any mistake involves safety deduct five marks HPS: 10
6	*Handling* Test of Gunner	Gun, sling, drill rounds, belts, wallet	Start with gun loaded. Order "Advance" and order the gunner to occupy a position behind cover. Give a fire order, "Stop", "Prepare to move", "Move"	Give 20 marks. Take off five marks for any mistake which would lead to inaccurate fire or danger (in making safe, for instance) and one mark off for any other mistake HPS: 20
7	*Grouping* Test of Gunner	Gun, wallet, SAA	The soldier fires two five-round groups in bursts at 25 metres. Take the better group	2 inch: 10 4 inch: 8 6 inch: 6 6 inch and 1 wide: 2 HPS: 10

HPS for all Tests: 90

SECTION 6—WATERPROOFING

1. The 7.62 mm MG (MAG) will most probably function after being immersed, but as a precaution the muzzle and gas assembly is to be plugged and covered by rag, or some other suitable material, to prevent sand from entering the barrel and gas assembly.

2. The return spring and telescopic rod is to be graphite greased.

3. If time and circumstances permit the body should also be covered by binding the feed tray and belt with cloth.

4. At the first opportunity the trigger group, which is a natural sump, should be removed and turned upside down to drain out the water.

5. After immersion give the gun additional gas to ensure it fires at the correct speed.

SECTION 7—THE BLANK FIRING ATTACHMENT

1. The blank firing attachment is to be used only in conjunction with blank ammunition, which is the same shape as ball ammunition. An additional feature which assists in recognition is that the nose of the blank round is crimped. These factors must be emphasized constantly by the instructor, section and platoon NCOs, and platoon commander, whenever blank ammunition is used. The soldier must be allowed to see and feel the blank round in relation to the live round.

2. A danger area of 30 metres exists immediately to the front of the weapon when firing 7,62 mm blank ammunition with or without the attachment fitted. The gun is never to be pointed directly at a person within this range. Great care must be taken when the weapon is used during house clearing or close quarter exercises. Before use the attachment is to be inspected by an NCO to ensure that it is securely fitted to the muzzle of the weapon. The spanner used for removing the flash hider (see Section 2), is to be used.

3. After firing, the attachment must be cleaned and oiled. Special attention must be paid to the screw threads inside the attachment, and those on the outside of the barrel. Replace the flash hider as described in Section 2.

SECTION 8—DESTRUCTION OF WEAPONS

1. If on active service it is necessary to destroy surplus weapons so that they become unusable to an enemy, the following actions will prove effective:

   a. Plug the barrel near the chamber or bury the muzzle in the ground; load and fire by remote control from behind cover.

   b. Strip as far as possible; bury and/or scatter remaining parts over a wide area.

   c. Retain essential parts of the mechanism that remain, such as usable firing pins, etc.

   d. Do not neglect the disposal of spare parts.

2. Should the foregoing destruction drill not be possible, other methods must be devised, eg, destroying by explosive charges or by fire, running over by vehicles, scattering components in rivers and undergrowth. Unfired ammunition can be destroyed by explosives using improvised demolition charges made up with grenades, bombs, etc.

SECTION 9—EXTRACT FROM TECHNICAL INSTRUCTION ARM 1/71 CARE AND MAINTENANCE OF SMALL ARMS AND AUTOMATIC WEAPONS

1. *Summary.* This instruction deals with the care and maintenance of small arms and automatic weapons currently in use, and replaces Technical Instruction Arm 1/67.

2. *Action Required by Units.* All units maintaining or operating small arms or automatic weapons are to comply with this instruction. Unit Commanders are to ensure that the contents of this Instruction are read and understood by all personnel.

3. *Priority.* Immediate.

4. *Detail.*

   a. *Factors Affecting Care and Maintenance.* To assist in the appreciation of the need for a high standard of weapon maintenance within the Army, it is necessary for all concerned to fully understand the basic factors which contribute to this need. These factors are related to the cleaning and maintenance of a weapon, together with its handling and storage.

   b. *Metals Require Protection Against the Following:*

      i. *Atmospheric Corrosion*, which is produced under the ordinary conditions of exposure to the atmosphere in which we live and breathe. At atmospheric temperatures, metals are, from a practical aspect, generally highly resistant to direct oxidation and only suffer rapid attack when electro-chemical action takes place. In practice, conditions which may permit the commencement of this action are invariably present when metal surfaces are in contact with an electrolyte. This electrolyte may be due to exposure to rain, but more commonly, it is provided by a film or pocket of condensed moisture. It may also be provided by absorption of moisture from the atmosphere by hygroscopic substances such as dust on the metal surfaces and perspiration from the hands during handling. Products of corrosion such as rust are themselves hygroscopic, that is to say, they have an ability to absorb moisture. Since the electro-chemical attack cannot occur in the absence of an electrolyte, it must always be confined to areas where the metal surface is wet or damp. If large areas of the metal surface are wet or damp however, corrosion is not necessarily distributed uniformly and may, on the contrary, proceed only at certain points of the areas in contact with the electrolyte. If the entire surface of the metal susceptible to this attack is insulated from its environment by an impervious film so that the metal is kept out of contact with an electrolyte conductor, corrosion cannot take place. This insulation can be provided by a thin film of a suitable oil.

      ii. *Chemical Corrosion.* When a weapon is fired whether it be a rifle or a large calibre gun, the propellant charge is exploded in the chamber and the bullet or projectile is forced through the confines of the barrel at a considerable velocity and pressure. The explosion generates a tremendous amount of corrosive gases, which are harmful to both the chamber and the barrel.

   c. From the above it will be appreciated that when a cartridge is fired from a barrel, the barrel and the chamber are fouled by the following:

i. Products of combustion from the cap.

ii. Products of combustion of the propellant charge.

iii. Metallic fouling from the bullet.

iv. The action of the constituents of the atmosphere accelerated by the fouling of the cartridge.

d. The sources of fouling at c. above are now dealt with in more detail.

i. *Products of Combustion of the Cap.* Cap compositions include a percentage of potassium chlorate, which produces potassium chloride on explosion. The latter when present even in very small quantities promotes rusting, if damp air can get to the surface of the bore. This chemical is, in this respect, very much the same as common salt and it is well known that salt water is very prone to causing rust on metal components.

ii. *Products of Combustion of the Propellant Charge.* Gaseous acids produced by the explosion of the propellant charge are a cause of corrosion in the chamber and barrel of the weapon. These inorganic residues will cause rusting if they are permitted to accumulate in the barrel.

iii. *Metallic Fouling of the Bullet.* Caused by a portion of the gilding metal of the envelope of the bullet being left on the surface of the bore and appearing as a whitish streak on the lands, and as a roughness on the edge of the grooves. If damp air can get between this fouling and the bore, rusting will occur.

iv. *The Action of the Constituents of the Atmosphere Accelerated by the Fouling from the Cartridge.* It is well known that steel components exposed to the atmosphere will become rusted unless covered in some way by a protective coating. The causes of such rusting have been detailed in paragraph 4.b. above.

e. Woodwork requires protection against:

i. *Dampness*, which causes the wood to warp and rot.

ii. *Dryness*, which causes the wood to crack and split.

This protection is best provided by linseed oil, which replaces the natural oils in the wood.

f. *Care and Maintenance.*

i. *General.* It must be appreciated that modern small arms and automatic weapons are highly sophisticated pieces of equipment, subject to very high stresses, both mechanical and thermal, which are built up during firing. In order to maintain perfect operating efficiency, it is necessary to keep the metal surfaces in as near the original state of smoothness and finish as possible. To this end, great care is needed in their cleaning, lubrication and preservation.

ii. *Cleaning.* Cleaning kits are issued with each weapon and should be used in accordance with the instructions contained in the Training Pamphlet for the weapon concerned. Barrels must be regularly cleaned as described below, and it should never be necessary to use harsh abrasives such as emery, or sand or brick powder, all of which have damaging effects. When circumstances permit, weapon cleaning should be done unhurriedly and should follow the procedure outlined below:

(a) Wash the bore with boiling soapy water using a solution of approximately 1 oz SOAP BLACK to one gallon of water. This is the most effective means of removing the fouling described in paragraph 4.c. above.

(b) After cleaning, DRY THOROUGHLY, using flannelette: after drying, the last piece of flannelette should be completely clean.

(c) Apply a thin film of BARDAHL oil to the bore and all moving parts. It is essential that only BARDAHL oil is used, due to its special rust prevention properties. This oil forms a very thin molecular film on the bore thus insulating the entire metal surface from corrosive attack.

(d) Where troops are operating in dusty or sandy areas, special attention should be paid to the cleaning of chambers. *If the latter are left in a dusty condition, scoring of the chamber will occur when the cartridge enters the chamber and excessively hard extraction will result.*

g. *Lubrication.* It will be appreciated that considerable heat and friction are generated in small arms and automatic weapons firing at high rpm, and the importance of correct and adequate lubrication of all moving parts is absolutely essential if the weapon is to function properly. Under normal conditions all moving parts should remain lightly oiled. Under dusty or sandy conditions Graphite Grease is to be applied to the gas regulator, the contact area of the slide and breech block, the guide ribs of the slide and body grooves.

SECTION 10—THE FEED BOX

1. The 50-round feed box may be used in the close quarter battle role. The gun can be fired from the bipod with the feed box fitted, but the box must be removed before a belt is loaded in the usual way otherwise stoppages may occur.

2. *To fill the box.* Open the lid to the left. Roll up the filled belt connecting tab first and ribs uppermost. Place the rolled up belt into the box and pass the leading link and round through the spring-loaded window of the lid. Close the lid.

3. *To load.* Ensure that the ejection opening cover is closed and raise the top cover and feed tray. Place the lip on the right side of the feed box on the lower rib on the left of the gun. Lock the feed box to the gun by pressing on it until the catch engages the stud on the body of the gun. Continue the actions of loading in the usual way.

4. *To unload.* Carry out the procedure for unloading as taught, and remove the box by pressing down the box retaining catch.

5. *Note.* Care must be exercised when handling a gun fitted with the feed box to avoid exerting pressure on the top of the box. This tends to buckle the retaining catch thereby causing it to become unreliable.